Marine Art

Marine science sets sail to the art world

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MARINE @UGENT

/Marine science & knowledge
At Ghent University 30 research units are involved in marine research. They recently united in the interfaculty research consortium Marine@UGent.

de Academie voor Beeldende Kunst Gent

/Creativity & art
The Academy for Visual Arts of Ghent organises art education for children, youngsters and adults in the extramural circuit (during evenings and weekends) to enhance creative skills and learning techniques in the disciplines of drawing, painting, graphics, sculpture, mixed media, ceramics, illustration & cartoon, photo art or animated film.

VLIZ

/General co-ordination
The Flanders Marine Institute (VLIZ) is the co-ordination and information platform for marine scientific research in Flanders. Among other things, it promotes the visibility of marine science and ocean knowledge to the public at large by means of popularisation and science communication.

Learning about the ocean

Learning about the ocean does not have to be restricted to formal education. 'Marine Art' proved that extra-mural activities can also be used to enhance ocean literacy and citizens' involvement in marine and coastal processes.

'Marine Art' brought art students and teachers from the Academy for Visual Arts into contact with marine researchers from Ghent University, both located in Ghent (Belgium). By means of presentations, dialogues or visits to the research labs, the art students learned about the status of the ocean and about marine sciences. The aim was to 'infect' them with insights into and with curiosity about our current ocean knowledge, and to give inspiration for their work(s) of art. The enthusiasm of 1,250 participants resulted in 65 workshops and more than 300 drawings, paintings, graphics, sculptures, mixed media works, illustrations, photographs and animated films.

The end-point of the project was an exposition for the public at large (2 – 6 February 2013), where the artwork was confronted with the science that gave the initial inspiration for it. About 8,000 visitors came to admire the 2,000 square meters of art expo.

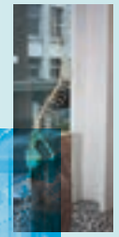
This publication reports about the process of ocean science communication, the interpretation by the art students, the work-in-progress and the resulting art expo. Unfortunately, due to the great enthusiasm we could only include a selection of what happened during this vibrant project.

Thanks to all!

Annelies Goffin & Nancy Fockedey, Flanders Marine Institute – VLIZ

More pictures of Marine Art workshops and exposition on www.vliz.be/MarineArt.

Microscopy
Skeletons
Organs
Stature
Tissue



01 Anatomy of marine animals

In order to assess the health of sea creatures,

we need to examine both their superficial characteristics and inner appearance. It is imperative that one is familiar with the animal's stature, to be able to determine whether the organs and tissues are healthy. Features that allow us to judge whether an organ is normal or abnormal are: its colour, form, structure and size. These traits are often studied using microscopic techniques: ultrafine tissue slices are prepared and subsequently examined through a microscope or scan. Scientists at UGent used these techniques to research, among others, whether dogfish are harmed by electrofishing, a newly developed fishing method that serves as an ecologically friendly alternative to traditional bottom trawl fishing. To be able to identify injuries, if present, one needs to know how the stature, organs and muscles of a healthy dogfish look.

The evening before the start of the Christmas holiday, a group of students from various adult courses were welcomed onto the campus of Veterinary Medicine in Merelbeke. Professor Annemie Decostere, and scientific partners Marieke Desender and Marjan Doom, shared with the students a glimpse of their world via presentations and a guided tour through the Museum of Morphology. The youth group - led by Wina Bogaert - were also eager to visit the museum. Even though the museum has an abundant collection of skeletons and models of diverse animals, the tour mainly focused on the sea creatures and how they have adapted for life in the sea.

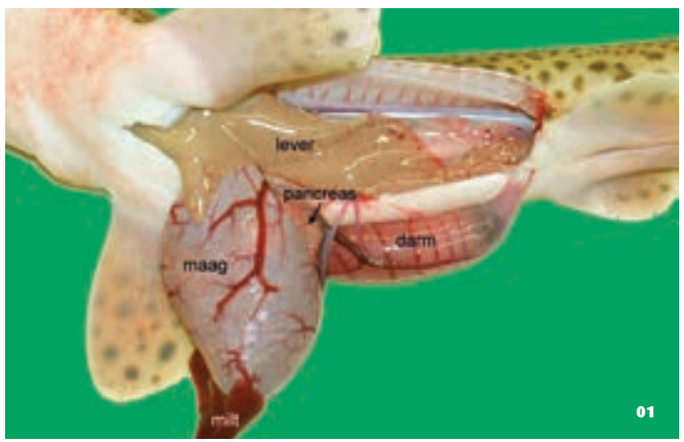
"I was very surprised about the elaborate explanation about the topic: There was enough information to keep us occupied for months! I will make a note to return another time." (Wina Bogaert, teacher youth group)

"For a long time I've had the intention to sculpt skeletons. Visiting the Museum of Morphology in Merelbeke definitely gave me the inspiration I needed to start the project." (Guy De Dapper, Sculpturing)

02

"People seem easily interested in "our" world, even though it is relatively foreign to them." (Marian Dooms, curator at the Museum of Morphology)

"We often receive artists and art student at the Museum of Morphology. But this was the first time that we had to focus on marine animals. It was special for me, because I conduct research on sea mammals myself." (Marian Dooms, curator at the Museum of Morphology)



01

03

"It strikes me how old etches of deep sea monsters differ in anatomy from the deep sea creatures on recent recordings: significantly more species were encountered than we could have ever imagined!" (Caroline Dobbelaere, Sculpturing)

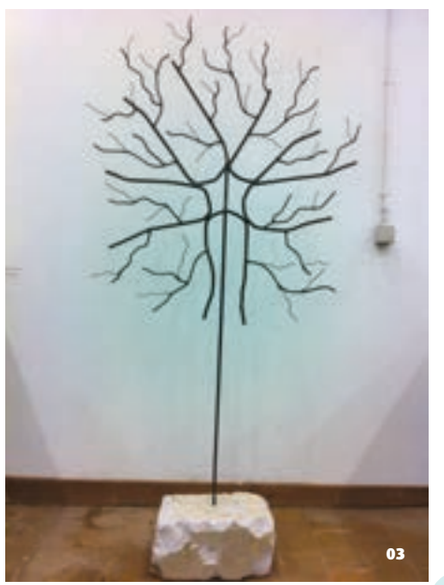
/Photo 01: Abdominal organs of a dogfish (Scyliorhinus canicula)

/Photo 02: The skeleton of a marine mammal hanging in the Museum of Morphology, Ghent.

/Photo 03: A sperm whale stranded. Scientists collect tissue, organs, bones and morphometric information to investigate the health of the animal.

01

02



03

/Artwork 01:
Gulper eel
Caroline Dobbelaere, 3th year Sculpturing mentored by Maen Florin, Guy Timmerman, Goran Grahovac
Intertwined elektricity wire, oxidized wire, fine knitted wire
Size: L: 50cm, W: 20cm, H: 16cm

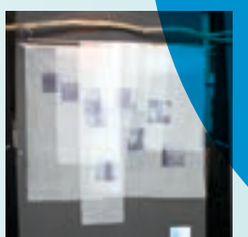
/Artwork 02:
Ziebieste
Guy De Dapper, 2nd year Sculpturing mentored by Maen Florin, Guy Timmerman, Goran Grahovac
Metal, malleable epoxy, wood
Size: L: 195cm,W: 28cm, H: 28 cm

/Artwork 03:
Starfish
Vitale Emilio, 1st year Sculpturing mentored by Maen Florin, Guy Timmerman, Goran Grahovac
Metal, malleable epoxy
Size: 150cm

Constructions
Protection
Wave energy
Materials & textures
Breaking waves

02

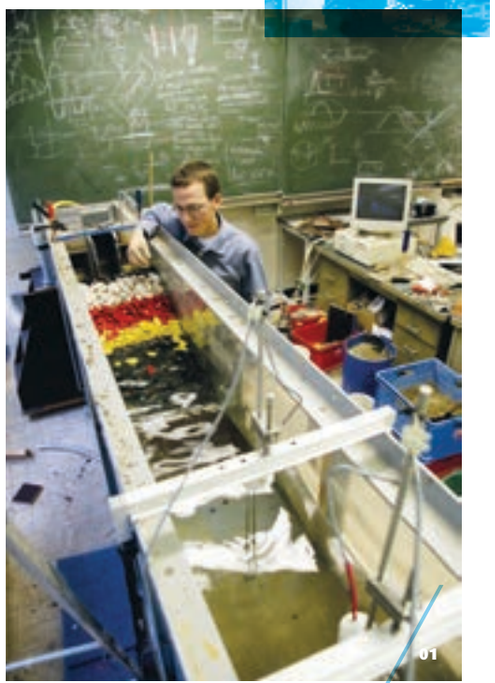
Building on the sea and seashore



Jetties and dikes are true architectural constructions,

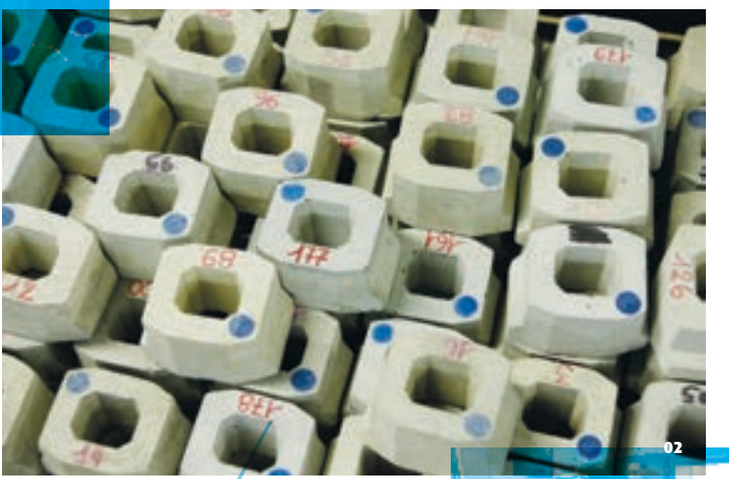
on which waves and the water level exert a lot of pressure. Their most important function is to protect the land that lies behind them against too powerful and too high waves. The jetty must therefore be built high enough (to prevent any water from flowing over) but also must be able to break the force and energy of incoming waves without getting damaged. Prior to commencing with building, architectural engineers make numerous calculations and determine which materials and shapes are the most appropriate. To break waves a specific sloping plane is needed. While a porous skeleton of rubble helps to increase the current resistance. In addition to a hard sea wall of stone and concrete, a soft sea wall (sand replenishment or the enrichment of the beaches with sand) exists to help protect the coast and subsequently has a more natural appearance.

Animation art teachers Christel Degros and Ann Barbier wanted to challenge the lower grade students to make designs of cities in a world where the sea has completely washed over all the land. In preparation, Christel visited the laboratory of hydraulic engineer Peter Troch. They agreed that he would light-heartedly explain to the children how you can alter coastal constructions in a way that they can resist the force of waves, as well as about building on sea, the rising sea level and rising waves. After the presentation, Peter spoke to the children about their design and the scenario. For the adult students of diverse art courses, the same presentation was supplemented with more theoretical information about waves. Also during this session many questions were asked and impressions shared, not only by the surfers or sailors amongst them.



01

"My husband is seafaring and at home we talk a lot about the sea. Maybe that's why I wanted to participate in MarineArt?"
(Christel Degros, teacher Animation art)



02

"I have always been very fascinated by the sea, there is always something left to discover. At first sight a jetty may merely look like a few concrete blocks. But if you look more closely, you will find plenty of vegetation and life."
(Marinette Vande Vyvere, Mixed media)

"Being from Zealand, building at sea of course appeals to me. I created the work on the evening before the memorial day of the flood disaster of 1953. I have sought to portray the disaster, the Deltaplan and the impact it has had in my work. The dam that appears layer by layer in my work, eventually brought peace and balance for man and nature."
(Riny Dees-Roose, Graphic art)

03

/Photo 01: To examine the effect of waves, a wave runnel was developed in the lab. Experiments and modeling are used to examine the potential penetration of water into the mainland.

/Photo 02 & 03: The HARO block: a massive concrete block with a large central opening, developed by the Belgian professor Julien Derouck and used as a coating for the Zeebrugge breakwaters.

/Artwork 01:
Stills from animated movie "De pechvis"
Pasha Levchenko, lower degree Animation art
Cut-out animation with paper
Time: 38 sec

/Artwork 02:
Grow
Marinette Vande Vyvere, specialisation year
Mixed media
Paraffin wax
Size: W:15cm, H:15 cm

/Artwork 03:
Emergo II
Riny Dees-Roose, 2nd year Graphic art
Dry needle prints 100x100mm, restauration paper, sticks
Size: W: 1270mm, H: 980mm

2D to 3D
Drawings
Collections
Display

03

The sea as a museum

The word museum originates from the Greek word 'mouse˜ıon', meaning study area, library and within this historical context it was seen as a place where the muses were honoured. Nowadays museums are generally perceived as places where art or science is being displayed. From a social point of view, museums play a key role in teaching scientific concepts to the general public. Just as how an exhibition on sea organisms enlightens people about the diversity of the seas. Our seas and oceans are home to a large spectrum of known and unknown species. It is estimated that 86% of all animals on earth live in the sea and that all large groups of organisms, "the phyla", exist in the sea and are sometimes even exclusively found there. The Natural Science Museum in Brussels and the Zoology Museum of Gent University, have on display an elaborate collection of marine organisms. These organisms are used for research and during presentation for large audiences. There are also online sources that gather information about species such as the World Register of Marine Species and the Encyclopedia of life.

The abundance of life forms in the sea and their diversity in shape appealed to many students resulting in them enthusiastically getting to work. Students of the sculpting workshop were evenly eager and took initiative to walk around and take in everything in the Zoology Museum, a permanent exhibition meant for biology students of the university. Those skeletons and mounted organisms - ranging from large to very small - that were displayed in a conventional manner, charmed them the most! Later the youth workshop, led by Celine Butaye and Karen van Gullik, visited and was provided with explanation by Dr. Tim Deprez. Dr Deprez, who is specialised in describing and studying species, also held an evening session for an audience of mature students from different courses. The vast number of shapes and structures of less common sea organisms were examined though microscopes. Students Illustration and Cartoon were assigned a special task: design a postcard and series of stamps based on the discoveries of the day!

"The fact that young children are stunned when you show them some strange sea organisms and a microscope is to be expected, but to see that it had a similar effect on adults, surprises me. Many had never used a microscope before, let alone a crab, spider crab or octopus up close. They were truly entertained!" (Tim Deprez, post-doc researcher, Marine Biology research group, UGent)

"I wanted to present my beach finds in a (pseudo)scientific way in cabinets just as in the Zoology Museum." (Henke (Henk De Fevere), Sculpturing)

01

"Our youth workshop lies in the basement of the Museum of Fine Arts (MFA). Working together with the Zoology Museum around the corner seemed like a very interesting opportunity: How does an art museum differ from a museum for (sea) animals? Are there any sea animals to be found in the artworks of the MFA? Can we create a piece of art out of sea creatures?" (Céline Butaye and Karen Van Gullik, teachers youth workshop)

"Being a taxonomist, I make detailed drawings of species that have only recently been discovered. I watched how the art students closely observed the specimens and created beautiful, accurate drawings. When their tutors advised them to add more dimension I felt it would 'ruin' the drawings, but I have to say that I am extremely enthusiastic about the end result." (Tim Deprez, post-doc researcher, Marine Biology research group, UGent)

02

"It is actually funny to see youngsters, who are used to interactive museums filled with games, screens and buttons get excited over an old-fashioned, Russian style museum full of skeletons and cupboards with pots in which animals and organs are exhibited. " (Tim Deprez, post-doc researcher, Marine Biology, research group UGent)

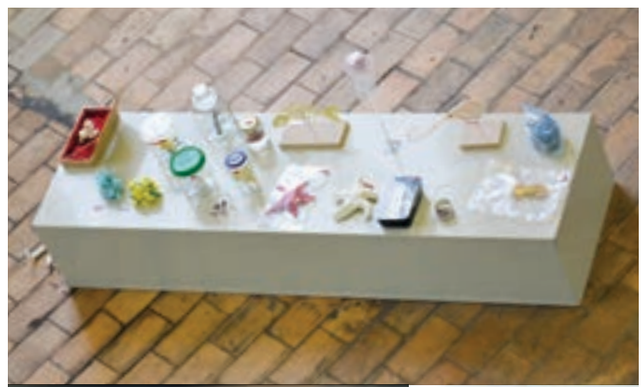
/Photo 01: In a reference collection, marine animals are mostly stored in glass jars filled with a liquid preservative such as ethanol.

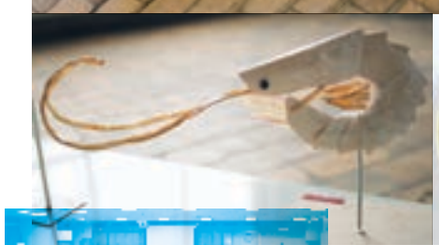
/Photo 02: Reference collection of marine organisms on display at the Zoology museum of the university Ghent: elasmobranchs and rays. © D.Verschelde

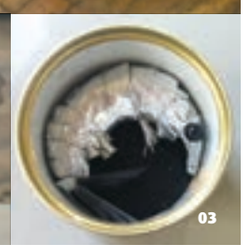
www.natuurwetenschappen.be
www.museumvoordierkunde.ugent.be
www.eol.org
www.marinespecies.org

01


02



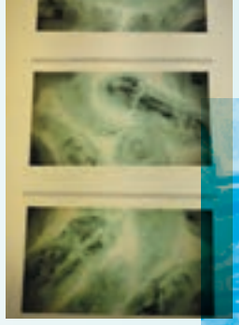



03

/*Artwork 01:*
Stamps and postcards
Illustration and Cartoon mentored by Stijn Gisquière & Ineke Marynissen
Variety of materials and different techniques, graphic software

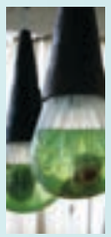
/*Artwork 02:*
Living in a box
HenKe (Henk De Fevere), 4th year Sculpturing
Metal, shells, beach finds, plastic, paint
assembly technique
Size: H: 50cm, W: 63cm, D: 12 cm

/*Artwork 03:*
Untitled
Children workshop Museum of Fine Arts mentored by Céline Butaye and Karen Van Gullik
Variety of materials, locker
Size: variable dimensions



Pencil drawings
Species richness
Registers
Adaptations
Changing environment

04 New species

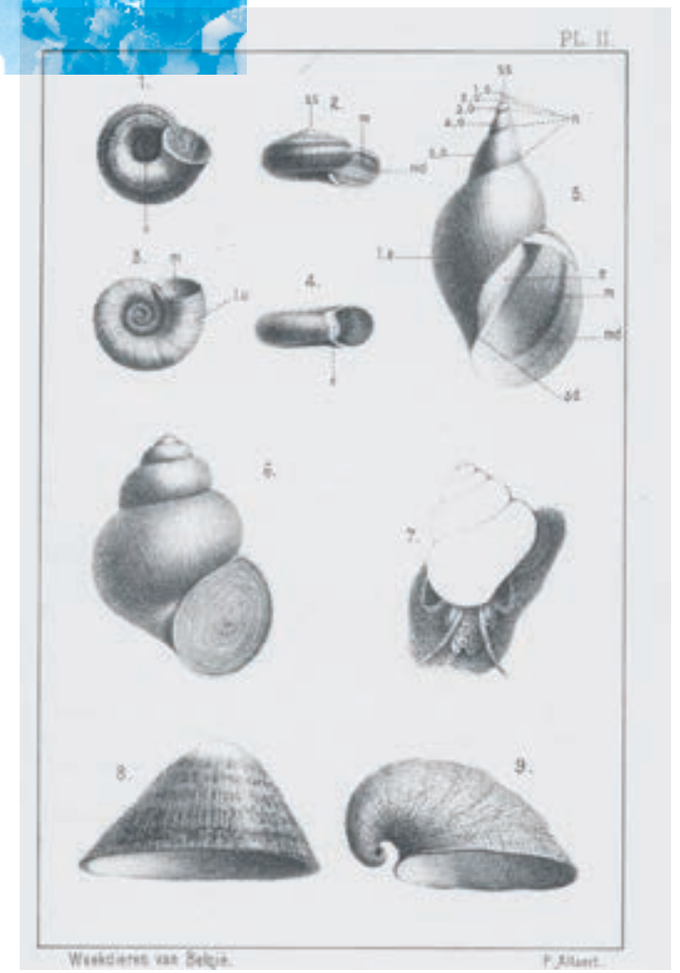


Describing species

is one of the oldest methodologies of biological scientific research. A new species is traditionally illustrated and described in detail. The researcher must have extensive knowledge of the various forms within the group to which the species belong. Although photography now allows objective illustration of the organisms, new species are still described on the basis of detailed drawings. This allows the merging of different observations and to make a 2D representation of a 3D organism. Model copies of newly described species are kept in museum collections to be used in the future for comparative research. Following specific rules, new species are assigned a bipartite Latin name: a genus and a species name. Although it is customary that the name is chosen according to certain rules and that it reflects a typical characteristic of the described species, there are numerous creative exceptions: *Abra cadabra* (type of mussel) and *Phialella zappai* (jellyfish named after musician Frank Zappa).

Marine biologist Tim Deprez of the Marine Biology research group attended classes at the art academy and found in his taxonomic work, for which new species are described and drawn in utmost detail, a good balance between his scientific and artistic skills. He invited teacher Veerle Van Nuffelen to the lab to brainstorm about microscopes, preserved animals in glass containers, taxonomical drawings and identification books. Next they went to the children workshop. He simulated that the class had been shipwrecked and had stranded on a deserted island. The animals they encountered there were all unfamiliar to them and had to be described. Tim Deprez had brought with him a collection of exotic animals and several microscopes for the children. They were asked to describe and come up with a new name for the species. Also a few teachers and adults let their imagination take them away and created new, scientifically unknown species and mutants.

"Children of this age (6-7 years) do not yet have the technical capability to draw realistically. They still make sense of everything using their imagination and expectations. That is why the enlarged drawings of (existing) species look like new, unfamiliar organisms." (Veerle Van Nuffelen, teacher children workshop)

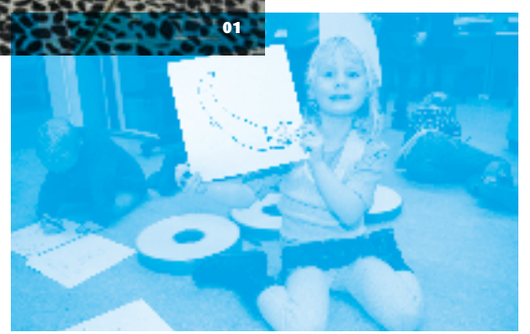


"Tim presented the material in a very playful way to my youngest group of 6-7 year olds, by starting off with talking about 'Pirate Peter' and a shipwreck. He immediately caught the children's attention. For some of them the explanation that followed was still a bit too much. They wanted to directly start playing with the jars full of animals they had never seen before." (Veerle Van Nuffelen, teacher children workshop)

"When Tim explained how he takes on the task of describing new species, at one point he touched on a drawing mirror: an instrument with which under the microscope magnified areas of an animal are traced in remarkable detail. This stimulated me to start working with magnifications." (Veerle Van Nuffelen, teacher children workshop)

"I also enjoyed introducing the fundamentals of my work to the youngest children (6-7 years). Probably, for most of them it was their first time looking through a microscope and coming into contact with organisms which they didn't know existed: a wow effect." (Tim Deprez, post-doc researcher Marine Biology research group)

/Illustrations:
Detailled drawnings of different marine species. From: Slabber M. (1778) & Eben (1884)

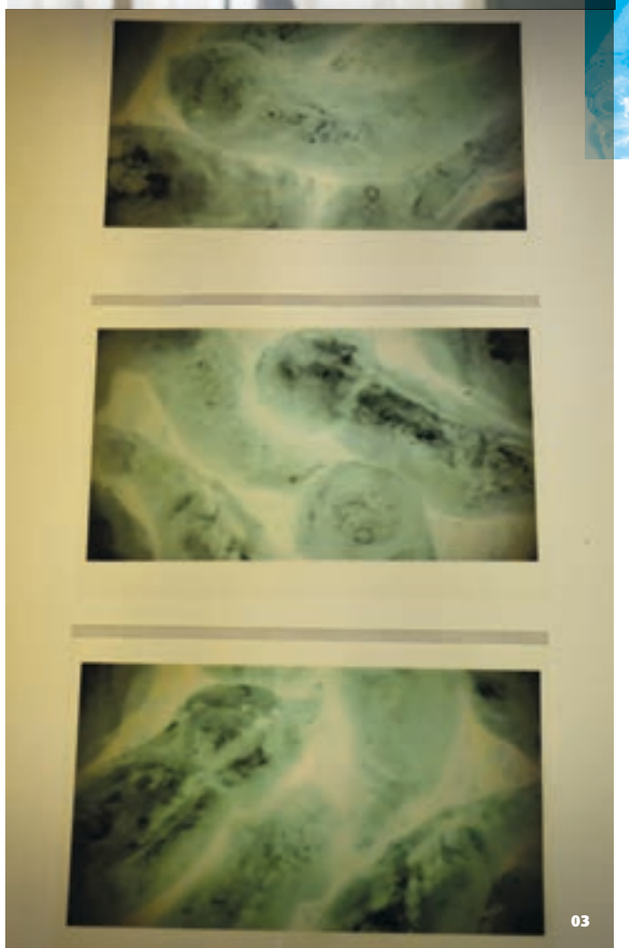


01

02

/Artwork 01:
Giants
Youth workshop mentored by Veerle Van Nuffelen
Elarged print of drawnings, wooden kube, blue ink, aquarel pencil, sepia bister, charcoal
Size: L: 90cm, W: 90cm, H: 90cm

/Artwork 02:
Monsters of the sea
Youth workshop mentored by Viola van Damme
Papier-maché, tape, powder paint

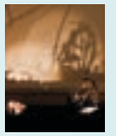


/*Artwork 03:*
Evolution
Inge Casteleyn 2nd year
Mixed media
Two-part work:
Standing: headlight, photo on mica
Hanging: wax, water, plastic

/*Artwork 04:*
Sea organ
Valerie Vanheule 2nd year Sculpturing mentored by Maen Florin, Guy Timmerman, Goran Grahovac
Paraffin wax

/*Artwork 05:*
Primeval mother
Danny Govaert Sculpturing mentored by Maen Florin, Guy Timmerman, Goran Grahovac
Styrofoam, sponge
Size: H: 50cm

Extreme environment
Dark, cold, pressure
Luminous organisms
Creatures
Living fossil



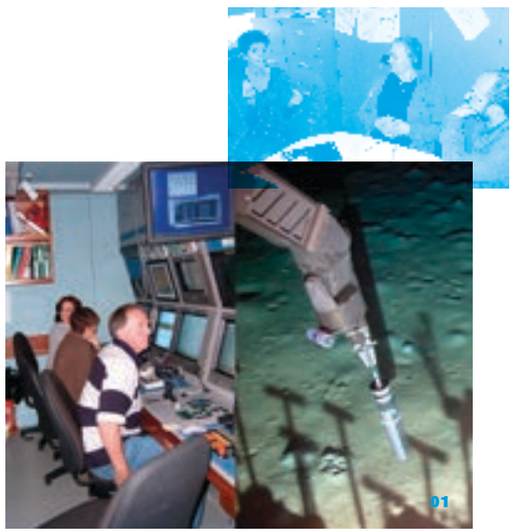
05 Deep sea

For a long time the deep sea was thought to be ‘lifeless’.

It was Darwin who was the first to suggest that the deep sea is a hideout for living fossils, after which researchers initiated expeditions and found there to be an unexpected, abundant array of species. Today, the deep sea can be explored using underwater robots (ROVs or Remote Operated Vehicles) which has led to a more heterogeneic picture than we thought possible. In this way, not only soft ground was discovered but also habitats such as hydrothermal vents and characteristic deep sea cold gas vents. These release large volumes of methane and sulphides. The fauna present at these sites live in symbioses with bacteria, who use the gases as an energy source and convert them into food for the organisms inside which they live. In other locations in the deep sea it is a matter of time before food from the surface water layers makes its way down: dead algae, marine snow, whale corpses, … The limited supply of food is without waste used by the diverse yet often strange looking and fluorescent deep sea creatures.

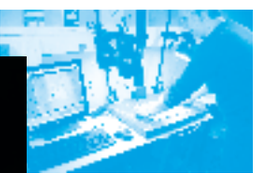
Many artists eagerly got to work, if not straight away, after an interesting presentation about the deep sea, by Professor Ann: a deep sea researcher. At the academy, she gave a presentation for several children workshops and groups of adults. The same presentation was later repeated by Katja Guilini and Dr. Nancy Fockedey from VLIZ for children workshops. The array of life forms that exist in the deep sea - without light, under high pressure and with little food - made people’s jaws drop and eyes widen. A lot of enthusiasm was expressed for the life and work aboard a research submarine, with its grippers attached to long cables and its innovative robots.

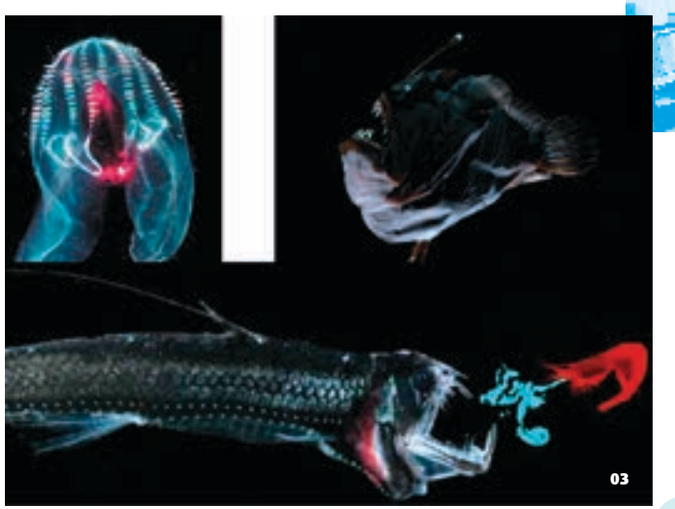
“I once saw a documentary about ship wrecks on TV which has always stayed at the back of my mind, as the ocean floor and the deep sea in particular, fascinate me enormously.” (Hilde Rosseau, Mixed media)



“I have boasted a lot to my family and friends about the project and talked about what kept me busy outside the sessions. I may not have made any works of art on the deep sea for the exposition, but when my grandkids came over, I drew deep sea creatures with them. Being the children of two biologists, they already seemed to know more about the topic than me.” (Annelies Coene, Sculpturing)

“After receiving the specific keywords from you regarding the deep sea and deep sea creatures, I started browsing about them online. We used the information I found to make a start in the youth workshop.” (Wina Bogaert, teacher youth workshop)

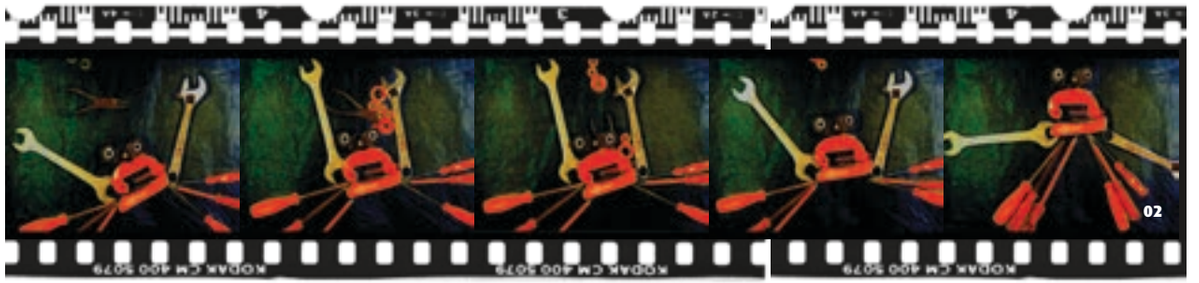




/Photo 01: Deep sea researchers use remote controlled equipment to take samples from the bottom of the deep sea.

/Photo 02: Antarctic deep sea amphipode © Torben Riehl

/Photo 03: Deep sea creatures have often an extreme morphology and luminescent characteristics.



/Artwork 01:
Stills from the animated movie "Behold the mutated biodiversity: metamorphoses"
Animation art, high degree mentored by Christel Degros, Iza Cracco and Ann Barbier
Cartoon, line animation on paper
Time: 1 min

/Artwork 02:
Stills from the animated movie "Deep sea"
Animation art, high degree mentored by Christel Degros
Greenkey technique: plastic canvas, old tools
Time: 2 min 41 seconds

/Artwork 03:
Phantasms of the sea
Visual art mentored by Wina Bogaert
Pastels on black paper

/Artwork 04:
Looking at the deep sea
Children workshop Claeys-Bouüaert mentored by Marianne Stevens
Fluorescent paint, paper, light, box
Size: W: 100cm, H: 60cm


01


02


03

/*Artwork 01:*
Whale in the deep sea
Solveig De Clippel, Graphic art 2nd year mentored by Marnix Everaert

/*Artwork 02:*
Shadow in the fog
Hilde Rosseau, Mixed media 1st year mentored by Hendrik Vermeulen
Installation: paraffin, metal, plaster, LED

/*Artwork 03:*
Untitled
Pia Cabuy, Painting 3th year mentored by Chris Vanbeveren

Cryptic
DNA
Roundworms
Identical

06 Look alikes

We can differentiate species by their appearance.

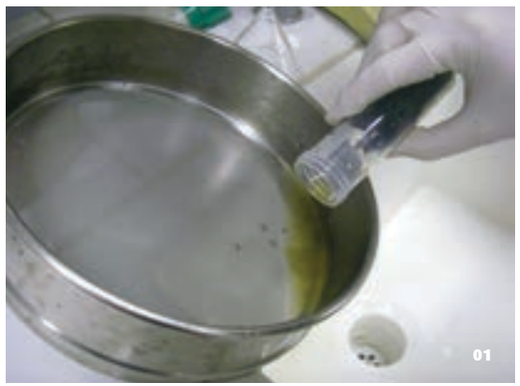
Sometimes the difference is visible with the naked eye, while at other times a microscope is needed. If they display no dissimilarities, biologists can conclude these are the same species. From the study of genes, it appears that what we originally consider to be one species often includes several hidden or 'cryptic' species. These cryptic species exist together, but cannot mate.
In between the sand grains live very small (<2mm) roundworms, the nematodes. Recent research on the genes of identical looking roundworms often reveals hidden species. But according to Darwin's theory, species that strongly resemble each other can never live together due to competition. So are we really dealing with other species? Research on cryptic species is still in its infancy, but has already proved slight differences in the lifestyle of cryptic species: one may for example prefer less salty water or chooses for other food. The question that persists is what other differences these look-alikes are hiding.

Explaining to primary school children that you are conducting research on cryptic species in the meiobenthos was not the easiest task for Jelle Van Campenhout and Nele Demeester of the Marine Biology research group. Yet, they managed to bring the children into contact with the tiny sea monsters that live in between the sand grains. And the fact that you - just like identical twins - can have the same appearance, but can still be very different regarding what you eat and how you live. After the session, DNA was also no longer unfamiliar to them.

"Initially I was afraid that the scientists would use too many difficult and technical terms, especially for my children's workshop. But they really put a lot of effort into clearly explaining what they do." (MarieAnge Demuysere, teacher children workshop, orientation year adults and Painting)


02

"It was a lot of fun to join the children in making crafts at the end. That way I could also find out what the children ended up doing. I do think however that a talk with the teacher and providing each other with mutual feedback (on the presentation and completed assignment) would have made the interaction between science and art even better." (Nele Demeester, Phd student Marine Biology research group)


01

"I am used to interacting with young children, but I had absolutely no experience talking about my research to children of that age group. I was very surprised about their intelligent questions at the end: material I had skipped because I regard them as general knowledge." (Nele Demeester,Phd student Marine Biology research group)

"The project has changed a lot within the academy. It was a frequent topic of discussion between teachers. The topic was infectious. That doesn't happen so often with other imposed themes. These are usually too broad and difficult to fill." (MarieAnge Demuysere, teacher children workshop, orientation year adults and Painting)


03

"I had already started designing sea monsters with the children when Jelle came to visit the class. This timing was not ideal because the children struggled to see the link between my assignment and his story about small animals that live in between the sand grains and strongly resemble each other, yet appear to be different species." (Viola Vandomme, teacher children workshop)

/Photo 01 & 02: Nematodes are small worms, before analyzing DNA, the nematode need to be seperated from all other parts such as algae or sandgrains,…

/Photo 03: Litoditis marina: the nematodes look the same, but actually on DNA level, it are three separate species.© Sofie Derycke

/Artwork 01:
Twins
Children workshop mentored by Viola Van Damme
Fabric, paper, paint, white chalk, charcoal, East-Indian ink
Size: A3

/Artwork 02:
Twins
Children workshop mentored by MarieAnge Demuysere
Test tubes, yarn, mirrors, cardboard, pencils

Food web
Copepods
Energy requirement
Mouth parts

07

To eat and to be eaten

Food webs in the sea are complex and vulnerable.

At the bottom of the food web, bacteria and diatoms for example constitute of the main food source for small animals such as roundworms and copepods (<1mm). These small animals, the meiofauna, are in turn an important food source for larger animals such as prawns, crabs and fish, which then again are eaten by, amongst others, large fish and humans. Who eats what and how much is researched in lab and field experiments. Copepods are one of the animals researched because they play a key role in the food web. There are many different species of copepods, each of a distinct form. They collect food using complex mouth parts which contain brushes and spikes. Next to observation also markers are added to their food to investigate how they metabolise it. In this manner, the food preference of a species and how much energy it provides them with can be researched as well as what happens when their environment is altered.

Marleen De Troch held 4 sessions for the children workshops of Vin Lenaerts and MarieAnge Demuysere concerning the life and wellbeing of small copepods. Everything had to be moved for each new session requiring her to wake up extra early. Then she would drive her wagon to the riverbank of the Westerschelde in The Netherlands to slog in the mud and collect buckets of silt, as this contains numerous animals that children can observe through a microscope. But first these animals had to be picked out of the sludge on a light bench. Marleen told a captivating story, played a video and presented various beautiful pictures. Student Eva Werbrouck came along and told an interactive story about her research on copepods in Kenya.

"Marleen and Eva gave us a glance of such a beautiful and unfamiliar world." (MarieAnge Demuysere, teacher children workshop, orientation year adults and painting)

"I can't smell the sea enough! Let's draw some more sea!" (Enthusiastically to the children while they were sketching the tiny animals living in between sand grains) (Vin Lenaers, teacher children workshop)

02

"I believe that someone who stands before a class must be like a magician. He or she must be able to 'enchant' the children and captivate them with their story. I think that Marleen and Eva definitely managed to achieve this!" (Vin Lenaers, teacher children workshop)

"It was wonderful to see the marvel on the children's faces; to see them staring with wide open eyes and mouths at the unfamiliar marine life. You sometimes forget that that amazement for marine life is what drives us researchers to keep on going." (Marleen De Troch, post-doc researcher Marine Biology research group)

01

"I got along very well with the teachers Vin and MarieAnge. Probably because artists and scientists have in common: good observation skills, astonishment and a lot of creativity." (Marleen De Troch, post-doc researcher Marine Biology research group)

/Photo 01: Copepod Metis holothuriae (Edwards, 1891) © Eva Werbrouck

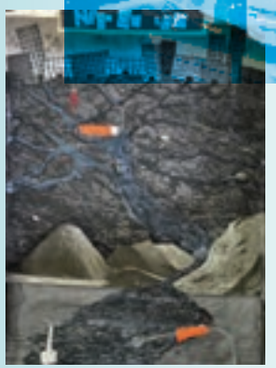
/Photo 02: Microarthridion littorale (Crustacea, Copepoda, Harpactacioida, Tachidiidae) © Marleen De Troch

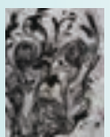
01

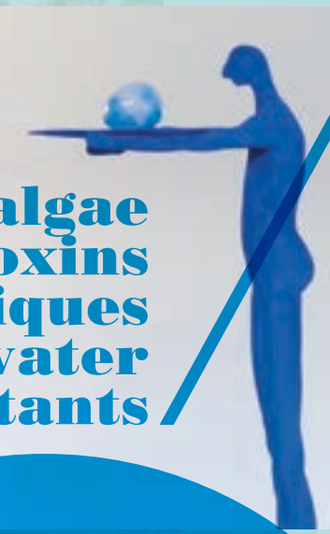
02

/Artwork 01:
Eaten
Children workshop mentored by Vin Lenaerts
Paper, colour pencils
Size: A3

/Artwork 02:
Eaten II
Children workshop mentored by Vin Lenaerts and MarieAnge Demuysere
Paper, variety of colouring techniques







Toxic algae
Marine toxins
Measuring techniques
Waste water
Micro pollutants

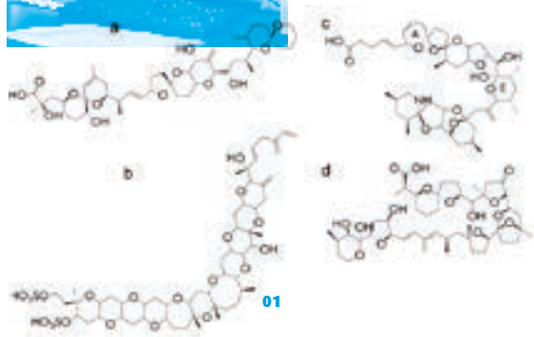
08

Poison in the sea / All water flows to the sea

The ever increasing world population

and the mass production of chemical agents - including medicines, beauty products and pesticides - are responsible for our waste water containing a lot of pollutants. Due to the discharge of waste water, the drainage of farmland and precipitation, these pollutants end up in rivers, the sea and in the organisms that live here. The presence of these substances in our water is being researched as well as their effects (toxic, hormone altering, causing bacterial resistance) on humans and animals. This increase in influx of wastewater, in combination to the rising temperature (as a result of the greenhouse effect), has resulted in the ability of certain toxic algae (that in the past exclusively existed in tropical water) to now also bloom in our region. The poisons or toxins which these algae produce can also be taken up by sea creatures such as mussels or oysters and in this way lead to disease in humans.
Using modern appliances, the pollutants as well as the toxins in the seawater and in organisms can be accurately measured. Modern and innovative analysis techniques are being developed to detect very low concentrations in a reliable and extremely sensitive manner. Furthermore, research is also being conducted to determine how residual materials of medicines can be removed from wastewater through the development of advanced filtering processes. The water that flows towards the sea will then be purer.

Teacher Parcifal Neyt, together with 10 students Drawing, visited the chemical analysis laboratory in Merelbeke. Professor Lynn Vanhaecke guided the group around the diverse instruments used to analyse water and sediment samples for traces of chemical components. The instruments did little to trigger the imagination of the artists, but the images of harmful algal blooms intrigued them more. The painting students led by MarieAnge Demuysere were invited to visit the laboratory of the Organic Environmental Chemistry and Technology research group. The entire evening, Professor Kristof Demeestere and his Phd students Xander Van Doorslaer and Leendert Vergeynst illustrated their research methods used to detect micro-pollutants in (sea) water. Even a dilution experiment was carried out (with coffee and sugar) to highlight the low concentrations that are worked with. Also the pioneering research regarding the development of new water filtering techniques - to prevent certain residual parts of medicines from passing through the filter stations - was demonstrated with an experiment.



01

02

"I am a child of the sea. I was born and raised in De Panne, but never before, have I viewed the sea in that light. Personally also very enriching!" (MarieAnge Demuysere, teacher children workshop, orientation year adults and Painting)

"I chose the marble techniques: diluted oil paint gets poured onto water, a drawing is made in it and a print is made onto a piece of paper. The blotches made me think of oil tanks that break in half and as a result unintentionally let their load of crude oil like an abstract drawing flow across the sea surface." (Parcifal Neyt, teacher Drawing)

03

"Artists primarily want to be inspired visually. To us, the analysis instruments were closed boxes that produce graphs. They did not inspire us much. Only when we saw photos of toxic algal blooms that completely turn the water red, did we become enthusiastic." (Parcifal Neyt, teacher Drawing)

"Beforehand, the perception I had of marine scientists was limited to what one sees in TV documentaries about divers, coral reefs and fish. Now I realise that a lot more research is carried out in and on the sea." (MarieAnge Demuysere, teacher children workshop, orientation year adults and Painting)

/Photo 01: Chemical structure of (a) Okadaic acid, (b) Yessotoxin, (c) Azaspiracid -1, (d) Pectenotoxin-2sa.

/Photo 02: Titration is used to determine the unknown concentration of a chemical constituent.

/Photo 03: Algae are cultivated to investigate the toxines they produce and their effect on marine species.


01


02


03


04


05

/Artwork 01:
Famous oceanographers
Visual art, lower degree mentored by Parcifal Neyt
Marble technique, oil paint on paper
Size: A3

/Artwork 02:
Famous oceanographers
Drawing, specialisation year mentored by Parcifal Neyt
Marble technique, oil paint on paper
Size: A3

/Artwork 03:
All water flows into the sea
Orientation year mentored by MarieAnge Demuysere
Cardboard box, variety of materials
Size: A2

/Artwork 04:
The water carrier
Micheline Beddeleem, Sculpturing mentored by Goran Grahovac

/Artwork 05:
Unhealty sea
Kristof Rosseel, Orientation year mentored by Céline Butaye
Coloured water, plastic container, infusion, dust cloak

Power
Tide
Water movement
Wind- & other waves
Tsunamis

09 Waves

Different types of waves exist,

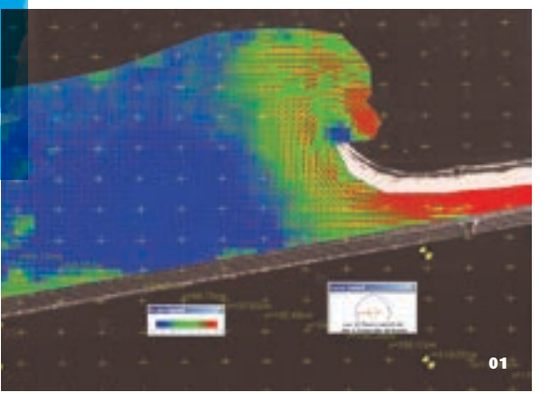
depending on how they are formed. Wind waves originate when there is a taught wind above the ocean, while tidal waves originate due to the attractive forces of the sun and moon, wash waves develop from drainage after a rain shower and tsunamis from the shifting of the ocean floor.
Wind waves undergo a cycle: they are born in the sea during a storm with a taught wind and develop until they reach their maximum magnitude. They can propagate for several thousands of kilometers. When the wind waves end up in shallow water, they are able to change direction (refraction) or weaken (breach). Eventually the wind wave dies out on the beach or against a jetty.
The way in which a wave propagates is called kinematics. In the case of wind and tidal waves, the movement is based on elliptically shaped lanes of water molecules under the water surface. Wash waves and tsunamis are on the other hand a permanent displacement of a mass of water.

People that attended the session about waves, held by engineer Professor Peter De Troch, will surely never look at the sea in the same light. Peter talked about waves that are broken under the impact of the wind, enter a puberty phase during which they strengthen and find their way, after which they enter their adult life (during which they travel long distances without the driving force of the wind) and finally die in shallow water near the coast. He explained about waves that break, that integrate with each other and those that change direction, as well as about tidal waves, wash waves and tsunamis. To elucidate how waves behave, they were even compared to cyclists on a race track. This is a good example of how a theoretical research theme can be communicated in a comprehendible way to children and adults!

"I found the explanation about waves and tides very interesting, yet my work arose purely out of emotion and instinct. In the past I worked at sea. Nowadays I still visit the coast, but it can't compare to the swell of the ocean." (Ann d'Heygere, Mixed media)

"The sessions by Peter Troch elicited a feeling of awe and fascination in me and my students for this century old, continuously ongoing nature phenomenon, waves at sea, and for how man strives to control it." (Céline Butaye, teacher of youth workshop and orientation year adults)

"The content of Professor Peter Troch's explanation was surprisingly interesting and was delivered in an enthusiastic and inspiring manner." (Kristof Rosseel, orientation year adults)



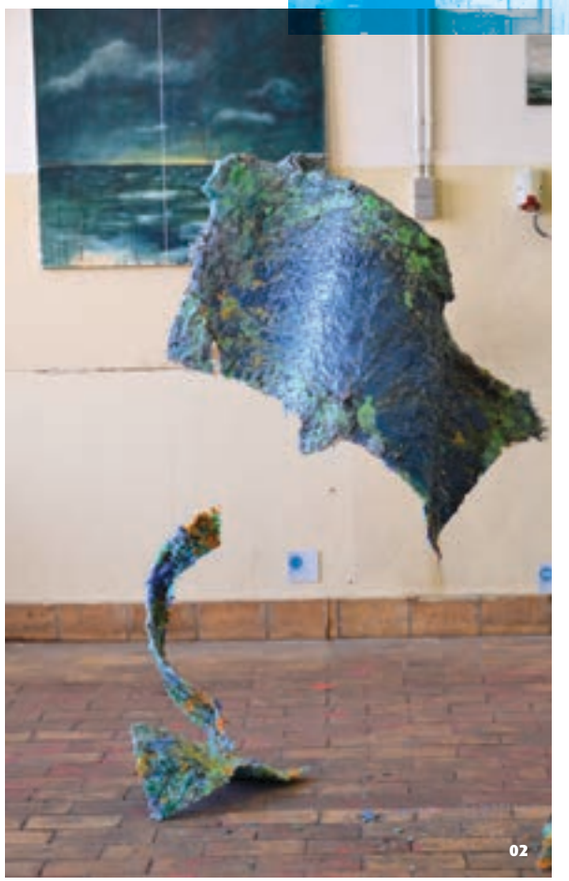
"Thanks to Marine Art I was able to delve deeper, together with colleagues, into a subject that has always interested me. It was nice to exchange ideas, attend lectures and anticipate the exhibition where we could see what the other art departments of our academy, as well as the children, had created. The interaction between and combination of science and art: I'm all for it." (Lina Ceulemans, Painting)

"I often use aluminum wire in my work. Shining coloured light on it, produces a tingling effect. It got me reminiscing about the rare occasion - on a warm summer eve - that I have seen the waves light up phosphorescently due to the bloom in the water." (Marinette Vande Vyvere, Mixed media)

/Photo 01: Sofsiticated programs are used to model and investigate waves.

/Photo 02: A stilling wave basin was designed at University of Ghent to examine the behaviour of waves.

01



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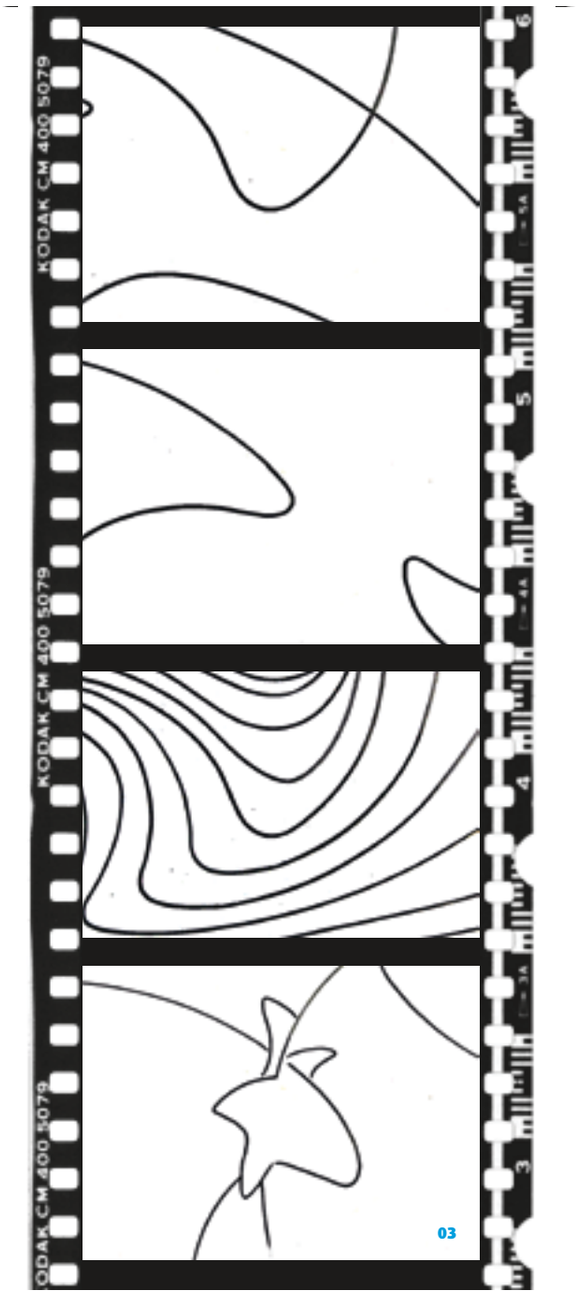
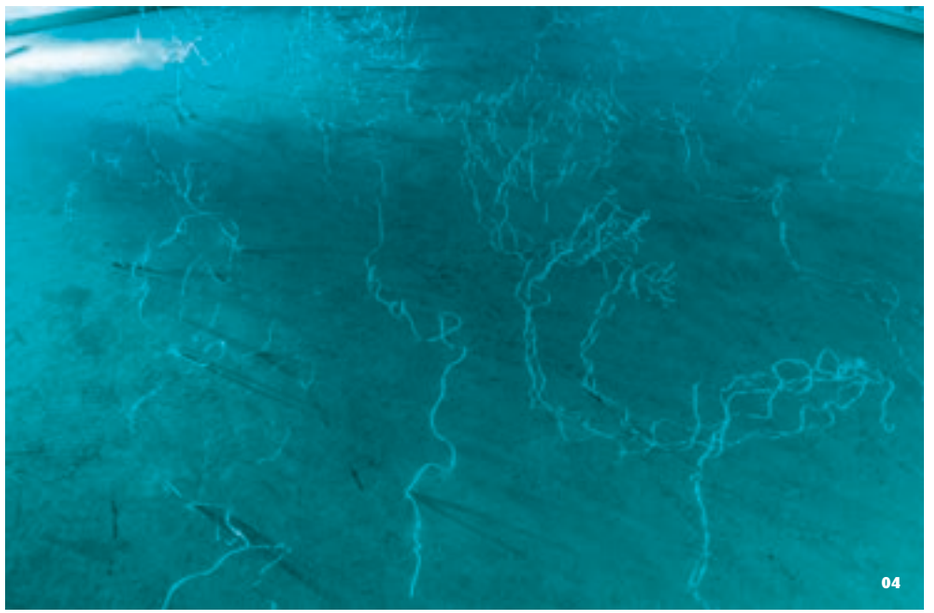


/Artwork 01:
Tsunami
Youth workshop mentored by Viola Vandomme
Paper, pastels
Size: A3

/Artwork 02:
Swell
Ann d'Heygere 4th year Mixed media mentored by Hendrik Vermeulen
Paraffin wax, nylon, pigment

/Artwork 03:
Stills from the animated movie "Tsunami"
Brecht Ameije 3th year Animation art mentored by Geert Vergauwe and Carl Van Isacker
Whiteboard animation with whiteboard marker
Time: 39 sec



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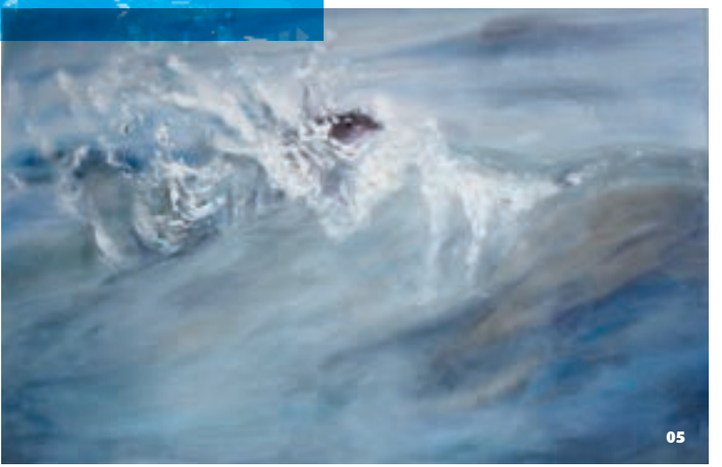


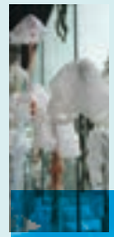
05

06

/*Artwork 04:*
Wave
Marinette Vande Vyvere
Specialisation year Mixed media mentored by
Hendrik Vermeulen
Wire, lighting

/*Artwork 05:*
Wave
Lina Ceulemans 4th year
Painting mentored by
Chris Vanbeveren
Acryl on Canvas
Size: W: 115cm, L: 75 cm

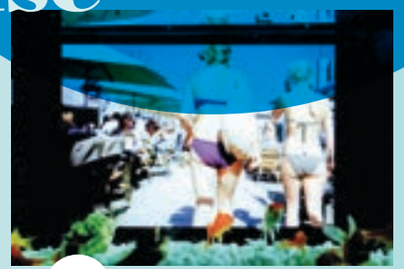
/*Artwork 06:*
Herald
Miriam Ooms 1st year
Mixed media mentored by
Hendrik Vermeulen
Oil jack, styrofoam, paint



Jellyfish invasion
Acidification
Sea level

10

Climate change & sea level rise



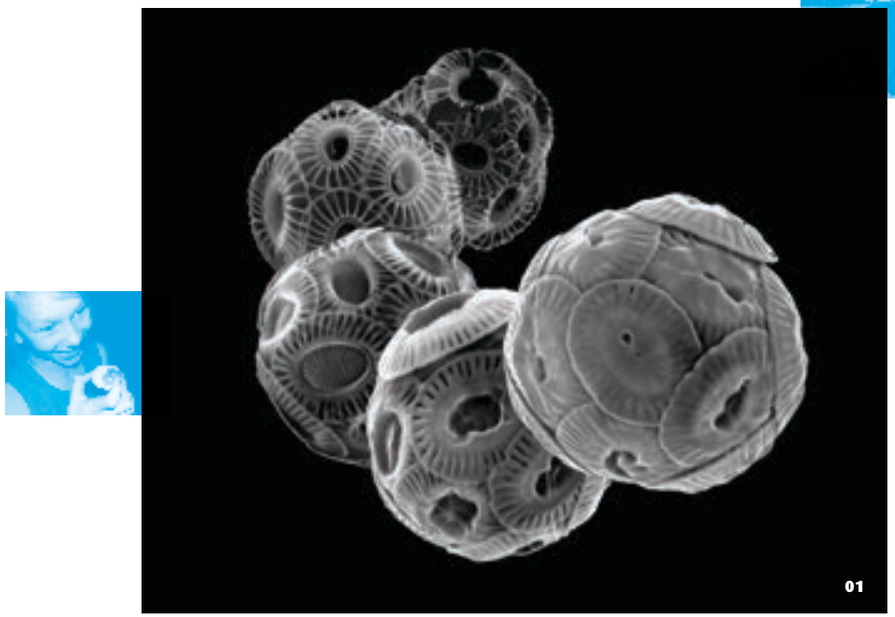
The world's climate is evidently changing,

which is causing fish populations, other animal classes (octopuses and shells) and plants to shift towards poles. It inevitably also affects the ocean and seas. Changes in plankton are disorienting the food web, not in the least in the fast warming North Sea. Unusual whales and diatoms are suddenly appearing, via routes that are now ice free, back in ocean basins where they had long disappeared. Also, here and there, jellyfish invasions appear to be increasing in our warm, polluted and depleted seas. Furthermore, the sea level is rising due to both the melting ice packed on land and the expansion of water at higher temperatures. On the Belgian coast the average sea level has risen by 15-20 cm over the past 80 years and continues to rise at a rate of 2.5-3 mm per year. In order to cope with the alarmingly high expected sea level rise (15-95 cm) by 2100, a lot of creativity and research is necessary.

In contrast to the warming of the earth, the acidification of the ocean is a less well known phenomenon that results from our excessive CO2 emission. Since the start of the industrial revolution, approximately 1/3rd of carbon dioxide emitted due to human activity gets taken up by the ocean. As a result, the ocean water becomes more acidic while the carbonate (CO32-) concentration (which corals, mollusks, crustaceans, and sea urchin need to build their lime skeleton or shell) drops. If the pH maintains to decrease in the future, this could imply that their skeletons and shells will dissolve or will form with difficulty or remain incomplete. These organisms that undergo calcification play a paramount role in the food chain, and coral and shell reefs contribute to the maintenance of species diversity in the sea, by serving as a habitat for numerous other organisms. How will all these animals respond to the acidification of the sea?

"What effect does a low pH have on sea organisms?" wondered the oldest kids of the children workshop taught by Veerle Van Nuffelen. Ann Vanreusel came to the studio to give some explanation. After a virtual dive into the deep sea, some experiments were carried out regarding carbon dioxide, pH, acidic fluids and dissolving shells and chicken eggs. From Experimental painting, the idea arose to look at the rise in sea level from the perspective of different disciplines. Due to popular demand, a trip to 'Zeeheldenplein' in Ostend was organized, with explanations delivered by hydraulic engineer Tina Mertens and marine biologist Jan Seys – who gave a broader insight into the effect of climate change on the sea and on the life within it. Due to overfishing, too many nutrients and the rise in the temperature of the sea, jellyfish are becoming more abundant. This had already been noticed by Oona De Keyzer and Annick Mahieu. After a session on jellyfish (during which jellyfish were even tasted!), together with their students from the children and youth workshops, they got to work and created an impressive construction using dozens of jellyfish.

"I would like to become a biologist, like my mom. And now I know for certain: I want to be a marine biologist! I also want to be able to work with those robots and study these strange creatures." (Miro (12 year), student children workshop)


01

"It has made me realize that marine science has much more to offer than fish, corals, and low and high tides. Also, I now appreciate that you can only work with what you already know. But how do you learn about the unknown? How do you discover the key words, which allow you to find a lot of information about the unknown on the internet?" (Veerle Van Nuffelen, teacher children workshop)

"The children found it very cool and they didn't hesitate to share their knowledge of the sea. Our work arose from the story of a turtle that swallowed a plastic bag, thinking it was a jellyfish. It was also definitely a big plus that a scientist attended, as he was able to answer all the children's questions." (Oona De Keyser, teacher children workshop)

"The sea definitely stirs something in artists, long ago and it still does. But the research we were introduced to, elicited a whole other sea- feeling in teachers and students, regarding on things that people don't directly know or expect." (Jacky Van Bruane, director Academy for Visual arts of Ghent)

"I had difficulty understanding Ann Vanreusel: she expressed herself using lots of scientific terms. I was afraid that she would talk in a similar way to the children in the class. But she truly delivered the information in a simple and comprehensible way, doing an excellent job! The short experiments also helped to demonstrate the principles." (Veerle Van Nuffelen, teacher children workshop)


02

/Photo 01: The calcareous skeleton of the microalgae Emiliania huxleyi. Because of the acidification of the sea fewer carbonate ions are available and the microalgae form a much thinner skeleton. Credit: Luc Beaufort, CEREGE (Univ. Aix-Marseille/CNRS)

/Photo 02: Jellyfish are becoming more common on our coast because of the global warming, but also due to overfishing.

/Artwork 01:
Fotoquarium
Wim De Block 3th year Photo art
Photos printed on 'Tecco Glossy Ultra White'
Size: A4

/Artwork 02:
To much jellyfish
Children workshop mentored by Oona De Keyzer & Annick Mahieu
Plastic bags, strings, fabric, variety of materials

/Artwork 03:
Untitled
Michel Teerlinck, E xperimental Painting 2nd year mentored by Annick Mahieu

Shelf life
Atmosphere
Package
Decay
Bacteria

11

To stay fresh for longer

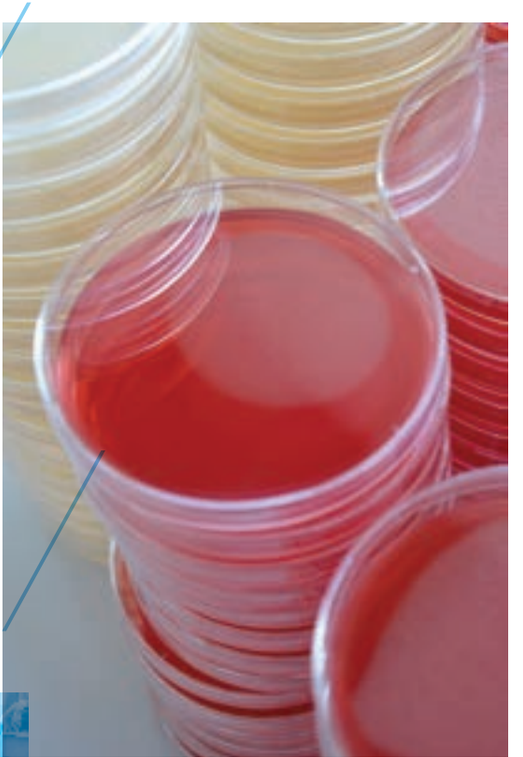
Fish and fish products have a very fast expiry date,

resulting in them often ending up in the garbage bin. That is why intensive research is undertaken into the ways to postpone their expiry, so that the products are fresher when they reach the consumer. One of the most important techniques used to achieve this, is Modified Atmosphere Packaging (MAP). This process involves replacing the existing air inside the package with a composition of CO_2, oxygen and nitrogen. But which combination of gases leads to the longest shelf life? To answer this question, microbiological analysis techniques are used to investigate the growth of a number of bacteria present in packaged fish.

For a whole morning, Professor Frank Devlieghere opened the Laboratory of Food Microbiology and Food Preservation on the Coupure street exclusively for the orientation year for adults led by MarieAnge Demuysere. After a presentation regarding the safe storage of food in general and of fish products in particular, a guided tour took place around the research laboratories and the experimental packaging units. A visit without a smell…

"Before we visited professor Devliegere's laboratory, our group had already elaborately discussed and brainstormed about how to undertake this task. I regretted doing that, because that Saturday morning we obtained so much new information and impressions, with which we could have created something completely different." (Student from the orientation year adults)

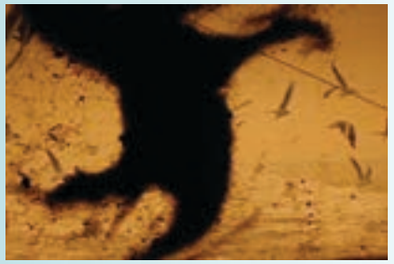
"I followed both the session regarding the plastic packaging of fish products (by Frank Devliegere) and the session about plastic pollution in the sea (by Colin Janssen). I noticed that the two scientists did not consult each other. I believe that an exchange of knowledge and insights would benefit both." (Peter De Pauw, Mixed media)



"The opportunity to work together with the university was very interesting: to find myself in places I do not usually visit and to come into contact with people I do not typically encounter." (Annelies Coene, Sculpturing)

/Photos: The packaging of fish is investigated using diverse techniques. Intensive research is undertaken at the University of Ghent on modified atmosphere packaging.

/*Artworks:*
Wrapped
Orientation year mentored by MarieAnge Demuysere
Cardboard boxes, clay, paint, plastic, paraffin
Size: A2



Ripples in the sand
Underwater dunes
Observing with sound
Black smokers
Deep sea coral

12

Sandbanks & ripples / Marine landscapes

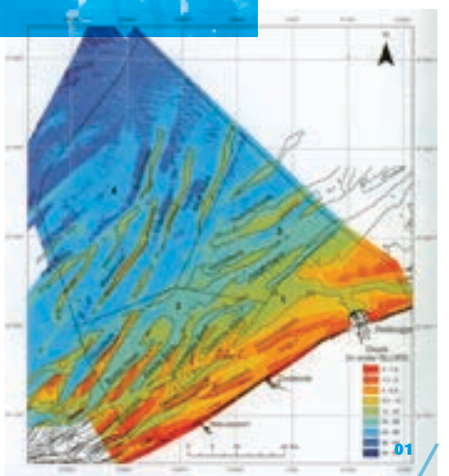
It is sometimes said

that we know more about the surface of the moon than the ocean floor. Of course the fact that the ocean floor is submerged under tens to thousands of metres of water, is one of the main reasons for this. There are numerous ways in which this sometimes complex ocean floor obtains its form. On our coast, mainly currents play an important role in this. Since the water depth and the distance are short, our ocean floor is well studied. Studies are carried out on the basis of bathymetric surveys, sampling and observing the floor using acoustic techniques.
That is how we discovered that our sea floor is composed of a landscape of complexly shaped sandbanks. Our Flemish sandbanks are covered by smaller sand dunes, on which even smaller sand ripples can be found. Knowledge about their appearance, composition and about how these marine landscapes are formed can help us predict which animal or plant communities, natural riches can exist here and what natural disasters can occur. This knowledge can then also be used to understand the even more unfamiliar and difficult to reach, deeper ocean floor. A beach walk at low tide between Bredene and Wenduine gives a good picture of the different small and big waves and ripples that can also be found in between and on sandbanks.

Geologist and professor David Van Rooij received three art teachers at the "Renard Center for Marine Geology" and informed them about the research carried out there regarding underwater landscapes and sea floors. The higher grade 'animation film', taught by Iza Cracco, even got a chance to go out at sea on the research ship Simon Stevin, where they could gain first-hand insight into how measurements are made. Geologist Vera Van Lancker attended the youth workshop of Céline Butaye and Anton Retsin to introduce the students to the world of sand. We learned how scientists investigate the form of sandbanks, sand dunes and sand ripples; how sand is constantly moving and repositioning itself; and that sand can take on all sorts of shapes and colours. So don't just call sand 'sand'!
Many students wanted more information about how the sea looks underwater, excluding the animals. By collaborating with the "Renard Center for Marine Geology" we delivered inspirational images to them: of sandbanks and sand dunes, coral reefs in the tropics and deep sea, but also of black smokers, deep sea troughs and mountains as well as the mid-Atlantic ridge.

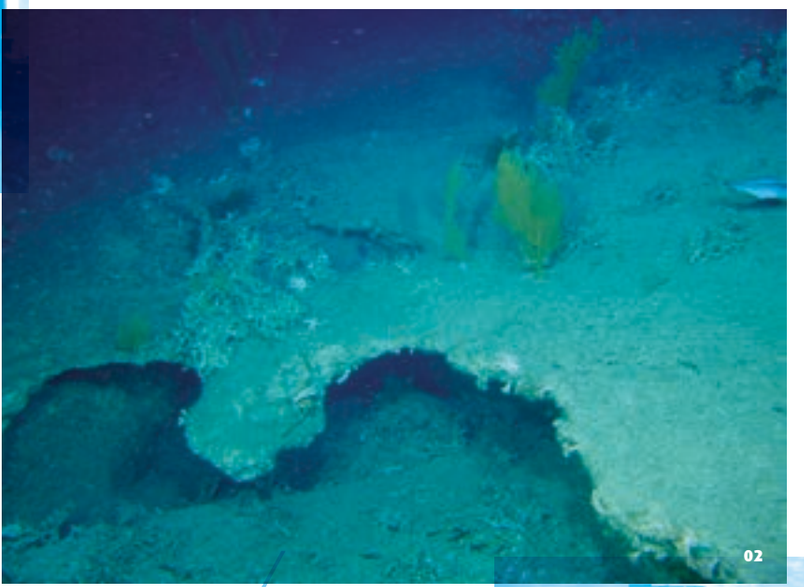
"On board of the research vessel Simon Stevin many sound recordings were made to incorporate into their animation. Strange, because geological recordings also work with sound signals that are sent and researched to what extent they bounce back." (David Van Rooij, Renard Center for Marine Geology)

"I had already made a start with my pupils, but VLIZ insisted to come speak about the "other biodiversity". I have to admit that we acquired a lot of knew knowledge from the story told by Annelies Goffin and Aina Trias Verbeek. It wasn't just an explanation given by anyone, but by marine experts who deal with this topic daily." (Annique Mahieu, teacher experimental Painting and Visual art)



01

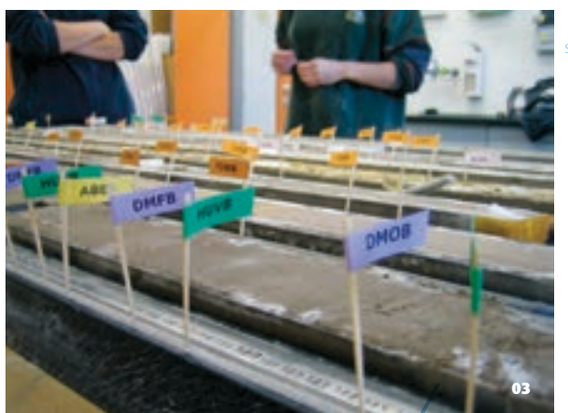
"Since I sometimes see various surreal shapes on the Multibeam images we generate in our research, I imagined that this topic would also be of great interest to artists. I was intrigued to find out whether artists view these images in the same light." (David Van Rooij, professor at Renard Center for Marine Geology)



02

"We were all gathered on the deck when David came running out of the control room with the message that we had missed "the moment of the day". When we later got to see the recordings, we couldn't express the same enthusiasm, but we did admire David's gusto." (Iza Cracco, teacher Animation art)

"With my group of young students, we put together animation films regarding overfishing and plastic pollution. Apart from a scenario, also a décor had to be created in which the story is set. It is striking how the students think of the underwater world as merely a blue plane, while so many under water structures appear to exist." (Danny De Vent, teacher Animation art)



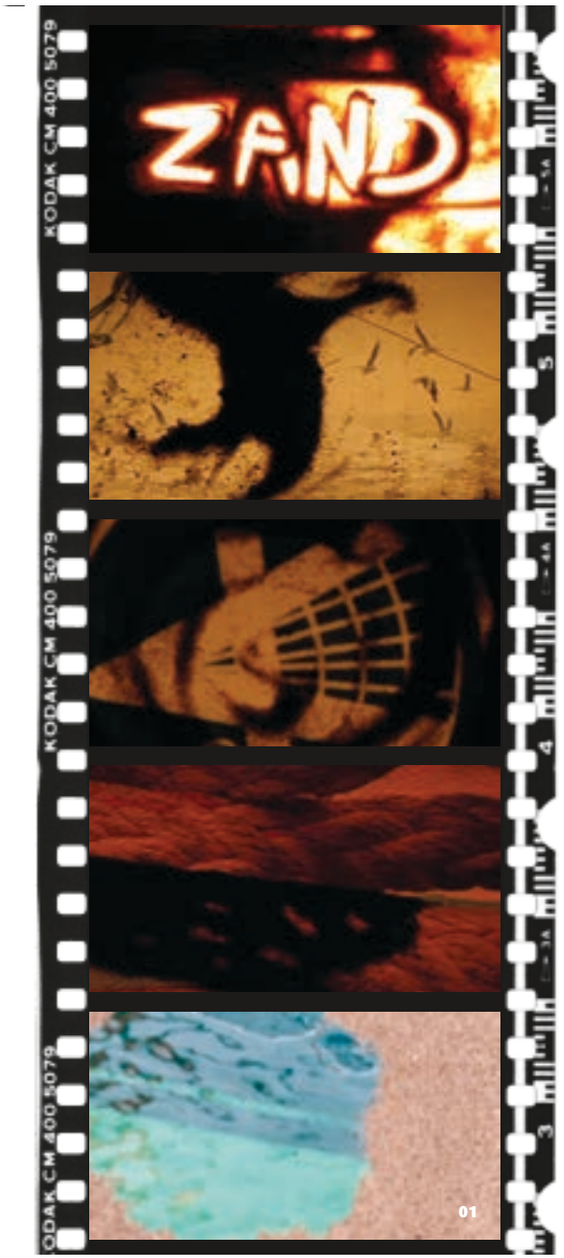
03

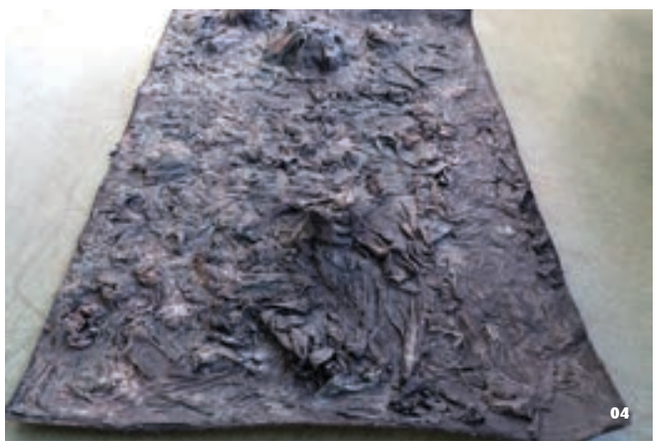
"I was immediately convinced to participate in the project. I personally have a lot of contact with surfers, divers and sailors. They mainly work in the tropics; which has definitely made me want to do something related to coral reefs." (Annique Mahieu, teacher children and youth workshop, experimental Painting)

/Photo 01: Bathymetric map of the Belgian part of the North Sea. To map the bottom of the sea, marine scientists use acoustic techniques, based on the reflection of sound waves.

/Photo 02: Underwater photos reveal a diversity of landscapes with rocky bottoms, soft sediments, trenches,…

/Photo 03: Core samples of the sea bottom are analysed: diversity of sediment layers, information on historic processes in the seafloor,…





/*Artwork 01:*
And then there was sand…
Animation art higher degree mentored by Iza Cracco
Sand animation on photo and lightbox

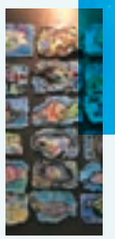
/*Artwork 02:*
Underwater world
Youth workshop mentored by Annique Mahieu
Aquarium, water, beads

/*Artwork 03:*
Underwater world
Youth workshop mentored by Annique Mahieu and Oona De Keyzer
Plastic, fabric, paint, buttons

/*Artwork 04:*
sandbanks
Orientation year mentored by Céline Butaye and Anton Retsin
Carpet, paper, paper tape, lot's of paint
Size: L: 190cm, W: 140cm

Plastic waste
Litter
Micro particles
Entanglement
Suffocation

13 Islands made of debris



Inevitably you must have already noticed

the increasing pollution on our beaches or you might have read in the newspaper about so-called garbage islands in the middle of the oceans. Rubbish in the sea is certainly a worldwide problem. Keep in mind, that for each piece of trash that floats around or washes up on the shore, five pieces lie on the ocean floor. Sixty to eighty % of all marine rubbish is plastic. Yearly, around 270 million tonne plastic is manufactured of which an estimated 10% ends up in the (marine) environment. On top of that, most plastics are difficult to degrade and therefore hang around tens to hundreds of years in our environment. The negative effects of this accumulation are: entanglement and suffocation. Research carried out by the UGent demonstrates that marine garbage is increasingly becoming an issue on our coast: did you know that on every kilometre of beach lies about 95 kg of garbage (of which 80-90% is plastic) and that per kg of sand 10 to 300 pieces of micro plastic (<1 mm) are present? Visible or invisible… it's about time we take action.

In the press you must have heard about plastic pollution at sea: "plastic trash islands" or "great Pacific garbage patch" where the current brings together large and small fragments of plastic. Professor Colin Janssen and his colleagues research how serious the problem is in the Belgian part of the North Sea. How much plastic do you see on the beach and floating on the sea? And how much don't we see because it's lying on the sea floor or because it has been broken down and disseminated by the sun and sea into tiny particles that are no longer visible to the eye? Professor Janssen has twice delivered a presentation at the academy, once for the youth workshop and once for a group of mature students. The presentations were repeated by Ines Tavernier and Nancy Fockedey for various workshops. As a demonstration, garbage was collected from the beach and displayed. Standing around a mound of trash on the table, everyone could assess for themselves what one can find on the beach on an average day.

"To creatively solve a current problem had never really occurred to me. The issue of plastic pollution at sea was demonstrated well by confronting the class with real beach garbage and showing them pictures of animals in need (entangled or stomachs full of plastic). It has made a lasting impression on the kids: a successful awareness process!" (Wim Van Cauwenberge, teacher children workshop)

01

02

"Particularly the younger ones in my class were inspired by this project. Prof. Colin Janssens' plastic story made a big impression on them, chiefly the part about suffering animals. Many questioned if there was anything they could do. We later continued to discuss the topic in class. By making a short but engaging film about the issue and presenting it to the public (via websites and Youtube) the students wanted to further address the matter." (Iza Cracco, teacher Animation art)

"Marine Art is about science, art and …respon-sibility. Sharing the beauty and importance of our ocean with as many people as possible should be part of the mission of each scientist" (Colin Janssen, Professor Environmental Toxicology Research Group)

"If someone is very enthusiastic about something, it will rub off on others. That certainly holds true when talking to children." (Iza Cracco, teacher Animation art)

03

/Photo 01: Seabirds eat little plastic particles or objects as they believe it is food. When their stomach is full, they can't eat anymore and die. © Greenpeace

/Photo 02: Some samples of plastic debris collected during a scienitfic campaign on marine litter.

/Photo 03: To catch the smallest plastic particles, scientist use a plankton-net.

/Artwork 01:
Plastic in the sea
Children workshop De Buurt, De Krekel, Sint-Paulus mentored by Wim Van Cauwenberge
Papier-Machée, paint, plastic

/Artwork 02:
Ooh what a mess
Lower degree Animation art mentored by Iza Cracco
Animation with paper and plastic debris
Time: 33 sec.

03

04

05

/*Artwork 03:*
Untitled
Peter De Pauw 3th year Mixed media mentored by Hendrik Vermeulen
Plastic, debris, metal, paraffin

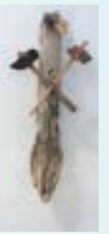
/*Artwork 04:*
Dead by …
Gerda De Wolff first year specialisation Painting
Paint, canvas

/*Artwork 05:*
Untitled
Sophie Coebeleux – Depraeter 2nd year experimental Painting
Plastic, paint, canvas

Sand
Shells
Debris
Treasures

14

I found it on the beach!

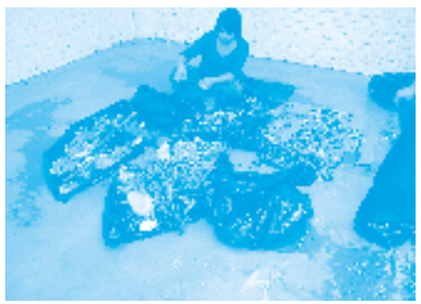


Although the beach may initially strike you

as an empty stretch of sand, on and in between the grains of sand live numerous visible and invisible forms of life. If one looks clearly one can see many signs of life: small rolled up heaps of sand are an indication of buried lugworms; washed up weeds along the tideline or onto groynes; skeletons of sand hoppers and crabs; molluscs such as shellfish and yes, even flowers (sea rocket) can be found. Next to dead animals such as seabirds, washed up mammals and shells, there is also new life: egg capsules of whelks, sharks and rays and egg strings of squids or worms. The presence of man is also clearly noticeable. A large amount of garbage lies on or washes up onto the beach. There are also signs of long gone times: lumps of degraded peat (deposits of dead plant material). With a bit of luck you will also find culture historical treasures on the beach: from 16th century tobacco pipe heads from Gouda to plastic explosives from WWII. There is more to the beach than meets the eye.

Being a true man of the coast, Professor Colin Janssen told about things you can find on the beach. The youth workshop of Céline Butaye and Marieke De Munck found sand a big source of inspiration. They travelled to Ostend to make sand sculptures and later to see them be destroyed by the force of the rising water. They recreated miniatures of their sand sculptures in class. They received more information about sand from expert Vera Van Lancker: the differences in grain size, colour, shape and sorting.

"I visit the sea often and walk a lot on the beach. I also like collecting all sorts of things. I have always been very "sea minded", but by taking part in this project, my thoughts about the sea have changed. I have taken on a different perspective..." (Peter De Pauw, Mixed media)



"The fact that the project offered us a substantial base and that there lay a common story behind all our tasks and the exposition was important. Otherwise, as art teachers, we really just do our own thing." (Elisabeth Makay, teacher children workshop)

"When creating works of art, you constantly start working with what you already know. But this project has brought us into contact with material that has allowed us to take it a step further. Marine science is truly a completely different world!" (Iza Cracco, teacher Animation art)

/Photo: A lot of waste washes up on the beach, but also a lot of natural materials such as shells, wood, egg capsules,.... This pile is the result of 4 hours search on 150m of beach

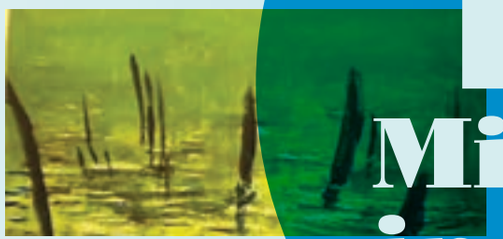
/Artwork 01:
Sandcastles
Children workshop mentored by Céline Butaye and Anton Retsin
Sand, glue, shells, seaweed

/Artwork 02:
Stranded
HenKe Henk De Fevere) 4th year Sculpturing mentored by Maen Florin, Guy Timmerman, Goran Grahovac
Sand, polyester,...
Size: L: 280cm

/Artwork 03:
Untitled
Sophie Martens, Sculpturing mentored by Maen Florin, Guy Timmerman, Goran Grahovac
Plastic boxes, diversity of objects

/Artwork 04:
Drifted
Raf Eeckhout, Sculpturing mentored by Maen Florin, Guy Timmerman, Goran Grahovac
Wood, variable materials

Mud
Layers
Bacteria
Colour



15 Microworld in the mud

Due to the excessive use of fertilizers,

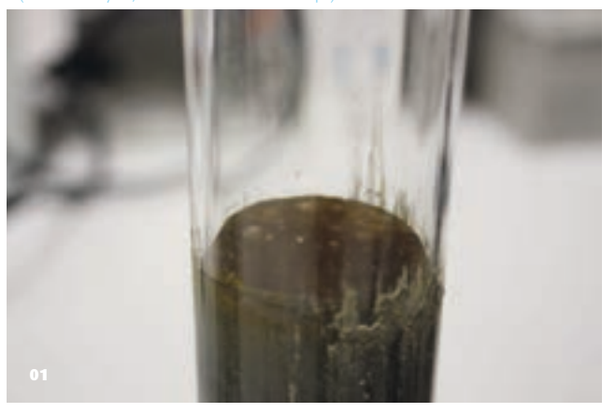
too many nitrates get into our waterways. In the sediment of river floors - such as the Scheldt river - some bacteria are capable of removing nitrates from the overlying water. In some instances however, the nitrates merely get reduced by the bacteria to laughing gas (N2O). This is how bacteria play a critical part in the warming up of the earth, which is driven by greenhouse gases such as carbon dioxide (CO2), methane (CH4) and laughing gas (N2O). Through the use of core samples in the sediment, the bacterial species diversity in the area can be studied and also, those bacteria involved in nitrate removing processes can be isolated and identified. By further studying the DNA of these organisms, insight is gained into the genes involved in the nitrogen cycle.

Although it was microbiologist Helen Decleyre's intention to take a group of students with her to the field (taking samples from the marshes of the Westerschelde), this was no longer possible due to the cold weather. Her research on micro life found in sludge of estuaries was instead demonstrated through a presentation and a tour of the laboratory of microbiology. Professor Anne Willems also came to join the group.

"I always find it interesting and inspiring to come into contact with people who think differently from me. Just like when I was standing at the expo looking at a particular work with a teacher of the academy. It was intriguing to realise that we both- each from our own life and world of thought- had a distinct interpretation about the same work. I find such meetings enriching." (Olivier De Clerck, professor at the research group Phycology)

"I attended seven sessions of the project, including the microbiology session. The two female scientists put in a lot of effort, but still I was not convinced. Sessions about research on life in the sea, personally interested me more. Microbiology was a bit to conceptual for my liking." (Cathy Cortvriendt, Painting)

"It was a very nice experience to work on a subject within the academy with both different teachers as well as various age groups. the children were so proud to see their work exposed together with the 'artists' work." (Oona De Keyser, teacher children workshops)



"In the distant past I studied teaching biology. I found the link with science very interesting. I immensely enjoyed myself and acquired a lot of new knowledge during the lectures and trips that you organised. Thanks for all your effort!" (Cathy Cortvriendt, Painting)

/Photo 01 &03: Sediment cores are used to investigate the bacterial diversity in the mudflats and marshlands.

/Photo 02: Bacteria cultivated on a Petri dish.

/*Artwork 01:*
Swamp
Chris Decadt
specialisation year
Painting
Paint on canvas

/*Artwork 02:*
Untitled
Children workshop Het
Trappenhuis mentored by
Goran Grahovac
Paper, pencils, paint, pastels

/*Artwork 03:*
Untitled
Children workshop Het
Trappenhuis mentored by
Goran Grahovac
Agar, plastic containers, clay

Colours & shapes
Seadweed
Biotope
Micro & macro

16 Lettuce of the sea

Seaweeds contribute to the character of coasts,

from the tropics to the polar circles. You have unquestionably already seen seaweed up close, when slipping on a jetty in Ostend or during low tide along the coastal rocks in Brittany. Seaweeds form a biotope where young fish and shellfish seek refuge against their attackers. Weeds serve as food for numerous animals such as periwinkles and common limpets, turtles, marine iguanas and even for humans. The numerous species take on an array of colours and forms. Through a combination of field work and laboratory experiments, ecological and historical factors that affect the makeup of weed communities are investigated. Also, DNA research provides information regarding the relationships between individuals on a local level as well as worldwide. This research allows the detection of changes in the species composition of weed communities that are the result of the introduction of exotic species or of the warming of the earth.

Frederique Steen, researcher at the phycology laboratory, presented information on large and small algae in a playful way to the children workshop taught by Marieke De Munck. Weeds expert Professor Olivier De Clerck organised a cosy evening session for adults in an overcrowded room at the academy. Here, we learned more about the abundant form and colour diversity of macro weeds and to what extent humans utilise them in all sort of applications. Professor De Clerck had brought with him part of his herbarium collection with dried weeds in addition to several beautiful picture books for the identification of macro weeds. The stunning patterns were attentively admired and photographed.

"I had no clue that weeds were so interesting. Even forests exist in the sea! I had no idea and was very amused by the stories. It was a very good initiative!" (Fleur Langerock , Graphic art)

"I do not have the feeling that I taught the participants new knowledge or facts, for that my presentation was of a too low level and not scientific enough. I mainly focused on the aesthetics and visual aspect of weeds. I brought them into contact with a topic they didn't know anything or not much about." (Olivier De Clerck, Professor Phycology department)

"Usually I work from my own inspiration, but this topic was something different for a change. It was a nice experience to have participated; it allows you to delve deeper than merely focus on your own interests." (Monique Jansen, Graphic art)

"I have learned that you can't steer artists into a certain direction. I had a picture in my head of how I wanted the artwork to look (collages of dried weeds). Nobody however followed my idea and now I realise that my expectation had little to do with art and more with ordinary kitsch, a gadget for tourists." (Olivier De Clerck, Professor Phycology department)

"I find it interesting and spectacular to see how everyone - using the same materials - makes something completely different. By observing each other's work, we now understand each other better." (Annelies Coene, sculpturing)

/ Photo 01: A bolder shaped macro weed.

/ Photo 02 &03: Researcher go and observe seaweeds in the field, but a very important part is also executed in the lab. DNA research unravels a lot of information on relationships between species.

/Artwork 01:
Seaweed
Youth workshop Huis van Alijn mentored by Marieke De Munck
Paint, canvas, paper, charcoal

/Artwork 02:
Seaweed
Fleur Langerock 2nd year Graphic art mentored by Vladimir Ivaneanu
Dry needle, chine-collé
Size: W: 21cm, H: 15cm

/Artwork 03:
High as a tower and miles across
Monique Jansen 3th year Graphic art mentored by Vladimir Ivaneanu
Woodcut; double print
Size: W: 70cm, H: 125cm

/Artwork 04:
And then there was Kelp
Annelies Coene & Jolanda Zanetti 3th/4th Sculpturing mentored by Maen Florin; Guy Timmerman, Goran Grahovac
Nylon stockings; imitation silk; sand; balloons
Size: L: 600cm W:300cm

Waste
Overfishing
Discards
Fishing techniques
Fishnets

17 Eating fish with a conscience

Every year the worldwide consumption of fish increases.

This has a significant impact on fish populations and the marine environment. The populations of a significant number of fish species is overfished and some species even threaten to become extinct. Additionally, multiple fishing techniques destroy their habitat in the sea. Overfishing is thus in the long term not only detrimental for the marine ecosystem but also for the fishing business, which provides jobs to millions of people worldwide. Fishing must be approached from an 'ecosystem perspective' and it must take into account the most vulnerable of species and habitats. Alternative ecologically friendly fishing techniques are increasingly being developed. By purposely choosing for 'responsibly' and 'sustainably' caught fish you can limit your personal impact on the environment. A good choice considers the size of the fish population, its source, the fishing technique used and the fishing season. Want to know more? www.fishpop.be.

The taste of the fish on your plate is probably well known, but where does this fish come from, who caught it and are there still enough fish around? Arne Kinds works at the Institute of Agriculture and Fishery on sustainable fishing and came to the academy to talk about the research that is needed if we want to keep fish on the menu: how does that fish live, how is the catch followed up, kept from expiring, and most importantly, how can people become more aware of the fish they eat?
This proved a difficult task, but still, both youngsters and adults from different art departments started working on it.

02

01

"I was not aware that people are so actively researching various aspects of the sea, and I was also not aware of how far they have already come. On the other hand, it is also distressing to see that despite all our knowledge, we only see the condition of the ocean deteriorating." (Annelies Coene, Sculpturing)

03

"I saw that the scientists got off to a good start; let's let them continue! I do find it unfortunate that despite all the research carried out and the knowledge obtained from it, not more action is undertaken by the government. There is hardly any fish left in the sea..." (HenKe (Henk De Fevere), Sculpturing)

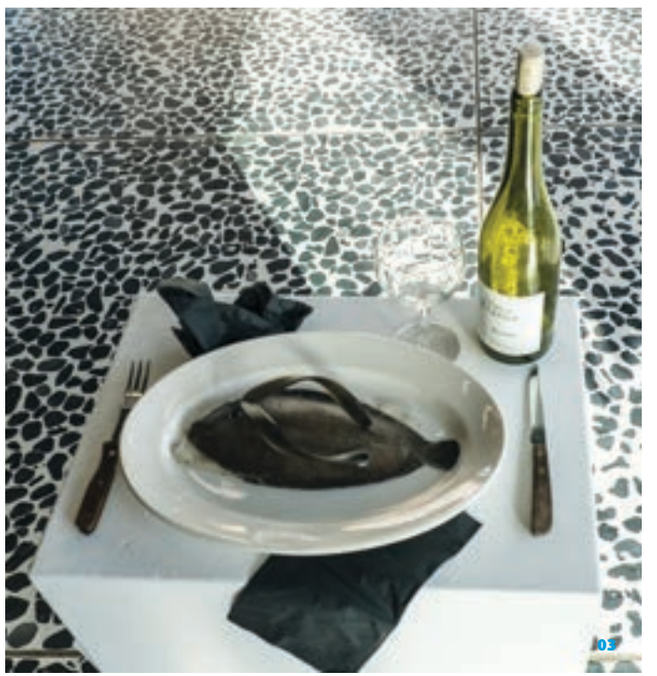
"I wanted to get to work without first attending a session. I was afraid to be steered into a particular direction. However, by working around an assigned theme you are challenged to think differently and to try something new. It is very inspiring and it allows you to make progress with your work." (Myriam Grymonprez, Graphic art)

/Photo 01 & 02 : Beamtrawling is one of the fishing techniques used by fishermen. The net and tickler chains attached to the beam disturb the sea-bottom and the animals living in it.

/Photo 03: Gurnard is offered as a good alternative to more overfished species such as sole or cod.

01


02


03

/Artwork 01:
The lonely pebble
Animation art, high degree mentored by Danny De Vent
Cut-out animation, paper, paint charcoal
Time: 51 sec.

/Artwork 02:
Untitled
Eric Fauconnier Sculpturing mentored by Maen Florin, Guy Timmerman, Goran Grahovac
Oxidized iron

/Artwork 03:
S(c)ande
HenKe (Henk De Fevere) 4th year sculpturing mentored by Maen Florin, Guy Timmerman, Goran Grahovac
Plastic, silicone, paint
Size: W: 70cm, H: 125cm

Between the sand grains
Extremities
Environmental adaptations

18 Worms in micro and macro

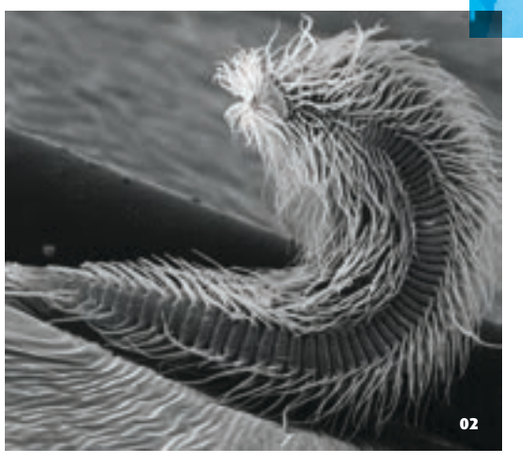
Threadworms or 'nematodes' are small worms (<1mm) that exist from the tropics to the poles. They live in between sand grains at the bottom of seas, rivers and lakes. Meanwhile, already 28.000 species have been described, but it is estimated that 100.000 species exist. Especially the deep sea contains a large variety of species. In marine research, these animals are used to evaluate the seabed quality. However, nematodes are mainly known to be the cause of plant diseases causing them to destroy around 10% of the world's crops. They can also cause disease in humans and other animals. Recently they have been used as an environmentally friendly means to fight insects. Surpringly enough, they present many similarities to humans: they have intestines, muscles, nerves and their genes encode similar proteins. Because they are much simpler and transparent, reproduce only on certain days and can be frozen, they are the ideal experimental model. They are used to study the human ageing process as well as the mechanisms behind illnesses such as Alzheimer, obesity and cancer.

A group of 12 mature students eagerly accepted Nic Smol and Wilfriede Decraemer's invitation to visit the Nematology Department of Ghent Univesrity. For each participant Nic had set up an experiment: under the binocular microscope tiny worms had to be picked up out of a liquid with thin needles and placed on a petridish. This thoroughly tested each person's fine motor skills. The nearly invisible worms seemed to have found their way to the treat sitting on the other side of the petridish. In between, the students received information about research activities that takes place in the laboratory. The physique and lifestyle of nematodes - which is much more diverse in marine species than in land species - were enthusiastically introduced by means of a preesftation and a video. But the most admiration was directed towards the taxonomic drawings of newly discovered species.


01

"I gained a lot from the sessions with the marine scientists. Even though you can nearly find everything online, when someone comes to personally talk about it, it has much more impact." (HenKe (Henk De Fevere), Sculpturing)

"I admired and was fascinated by the way Prof. Wildrida Decraemer based her scientific work on art. She has an eye for composition, she puts her whole soul into her work and is very involved. Just like an artist." (Luc Everaert, Painting)


02

"At our academy we have all kinds of students: young and old, poor and rich, from a low and high educational background. For many it was a very good opportunity to work together with the university. Some were even very proud of this experience." (MarieAnge Demuysere, teacher children workshop, orientation year adults and Painting)

"The project and the explanations inspired me to make something different from the usual. It encourages you to look at something from a different perspective as well as to think and work differently." (HenKe (Henk De Fevere), Sculpturing)


03

/Photo 01: Sampling of nematodes on a mud flat at low tide.

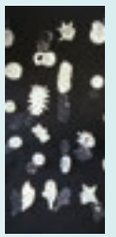
/Photo 02: The marine nematode Greeffiella.

/Photo 03: A juvenile nematode Tricoma sp. This worm is only 10 µm long.

/*Artwork:*
Moluscae caenogastropoda neolepetosidae Nr. 10013
HenKe (Henk De Fevere)
4th year sculpturing
Shell, silicone, nylon, metal fabric, polyester
Size: L: 36cm, W: 13cm, H: 24 cm

Diversity of shapes
Diatoms
Food source
Oxygen production
Glass houses

19 Pearls of the sea

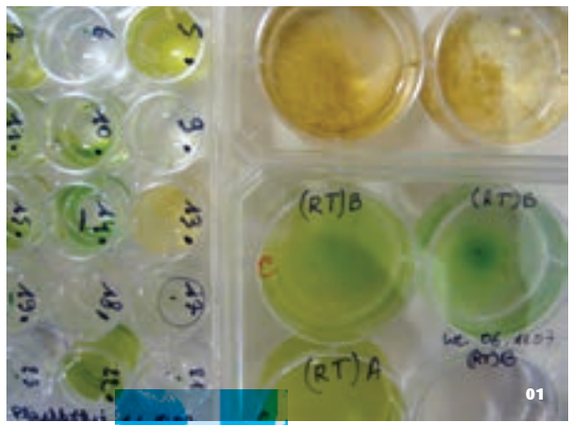


Diatoms are miniscule creatures

that are usually not visible by the naked eye. They are found everywhere where there is water. In the sea they are part of the phytoplankton but they are also found in between the sandgrains of the ocean floor. They form the basis of the foodweb and are an important dietary component for several small sea animals. Diatoms form a cell wall which comprises of silica; it looks like a glass capsule. They present an enormous morphological variety, from disk and star shaped to oblong. Also, they often form colonies. Due to their extraordinary shapes they are rightly considered the pearls of the sea. Although they are not closely associated with plants, they make use of chlorophyll. Yet they are not green, but a glistening gold colour due to the reflection of sunlight from their pigments and the chlorophyll. They undergo photosynthesis during which CO2, water and sunlight are converted to sugars while oxygen is released. Together, all diatoms in the sea are responsible for the production of 1/5th of the world's oxygen, so for every 5th breath we take, we should really be thanking the diatoms!

Marine biologists Lander Blommaert and Ines Tavernier visited various children workshops - led by Veerle Van Nuffelen and Elisabeth Makay - as well as the first year drawing class led by Joëlle Servais. They brought along live diatoms, a microscope and a presentation in addition to many images of highly magnified samples. Their shape variety, glass capsule and their critical role in the food chain, were an inspiration to many in the academy. Therefore, Professor Koen Sabbe invited a group of higher grade students studying sculpting, graphic arts and Painting, to the laboratory. A tour at the laboratory made sure that diatoms became a real source of inspiration.

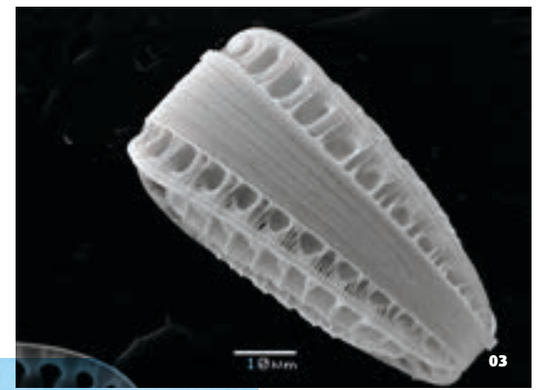
"Working with unfamiliar organisms, shapes and patterns, was stimulating. I often see other ceramic artists working with diatoms. I notice it more, now that I know about these organisms." (Veerle Van Nuffelen, teacher children workshop)



01

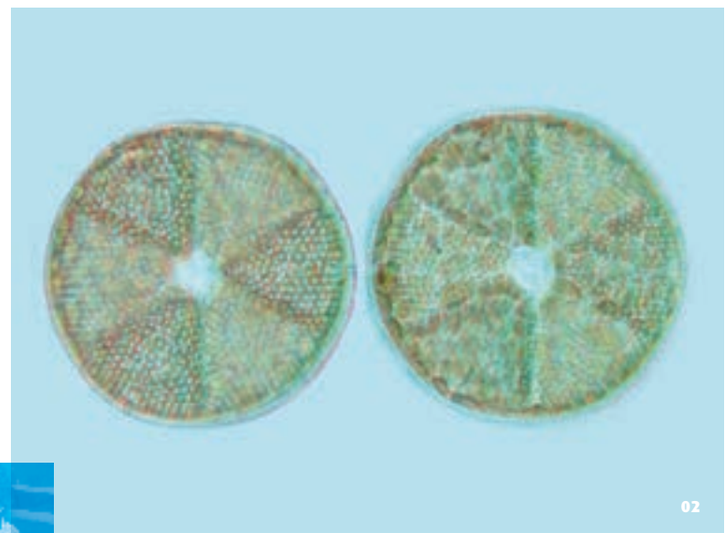
"When Koen Sabbe spoke about the glass capsules of diatoms, I instantly thought about working with glass. Especially since I have a ceramic oven available in my workshop." (Veerle Van Nuffelen, teacher children workshop)

"I just saw the diatoms move under the microscope: beautiful! Can I take some with me in my lunch box to show my mom?" (Bella (7 years), children workshop)



03

"The children found it cool to know about the word "diatoms" (as it's a difficult word for them) and were eager to use it. Later during the year they still brought it up: "Miss, when can we draw a diatom again?" " (Elisabeth Makay, teacher children workshop)


02

"People lacking previous knowledge about the work, interpret my art work as a pool of water with boats and lifebuoys. People that have prior knowledge on the other hand, such as scientists, can immediately recognise the typical shapes of diatoms." (Myriam Grymonprez, Graphic art)

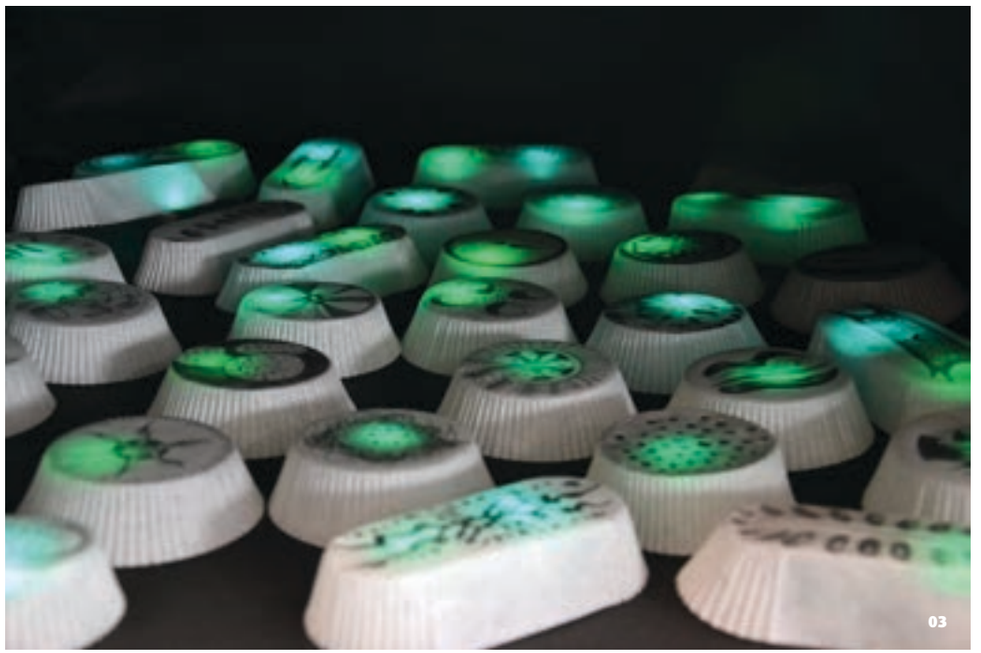
"The diatoms swim around under the microscope. Does that mean that when we swim in the sea, that we are swimming amongst diatoms?" (Student (7 years), children workshop)

/Photo 01: In the lab algae and diatoms are cultivated to investigate, morphology, environmental effects,…

/Photo 02 & 03: Diatoms produce a cell wall composed of silica - as it were a glass house. This gives a tremendous variety of shapes.

/Artwork 01:
Diatoms
Children workshop De Klaverdries mentored by Elisabeth Makay
Charcoal; bister
Size: L: 50cm, W: 35cm

/Artwork 02:
Glass pearls of the sea
Children workshop De Feniks mentored by Veerle Van Nuffelen
Pâte de verre; white ink on black paper; light
Size: L: 120cm, W: 80cm, H: 60cm

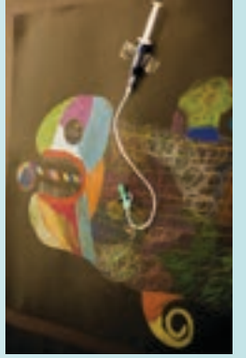


03

04

/*Artwork 03:*
Diatom: cupcake of the sea
Drawing 1th year higher degree mentored by Joëlle Servais
Paper cupcakes; pencil; cardboard boxes, led-lights

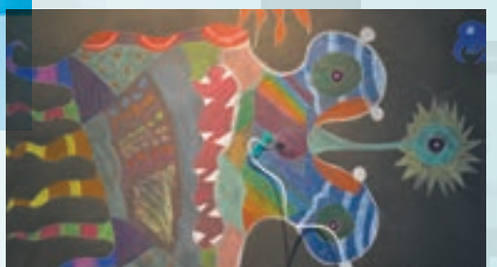
/*Artwork 04:*
Diatosea
Myriam Grymonprez 3th year Graphic art
Fabric objectsmen: dry needle on PVC, printed in fabric
Size: L: 70cm, W: 50cm, H: 10cm
Ground: inked PVC plates
Size: L: 400cm, W: 280cm



Tissue
Microscopy
Autopsy
Spot disease
Vaccinate
Antibodies

20

Immunity & disease / Unhealthy fish



Just like all animals,

also marine fish and mammals can get sick. The 'disease' often goes unnoticed, until a large percentage of the population dies. Autopsies are carried out to determine the cause of death, during which the animal's internal and external appearance are inspected for any visible abnormalities. Additionally, small tissue samples are obtained from the various organs and are investigated microscopically or analysed for the presence of bacteria, viruses, parasites and toxic chemicals. On the basis of the results, a diagnosis is then sought. This allows more efficient treatment and control strategies to be developed.

Eric Cox visited the academy to deliver two sessions to the children workshop (8-12 years) of teacher Parcifal Neyt. Referring to pictures and simple graphics, Eric told about the research that occurs in the laboratory in Merelbeke. The children were intrigued by the story about spot disease in dolphins in dolphinaria, although the professor had difficulty getting the children to understand the principle of defense and vaccination. Through questions and answers a lot of doubts were resolved.

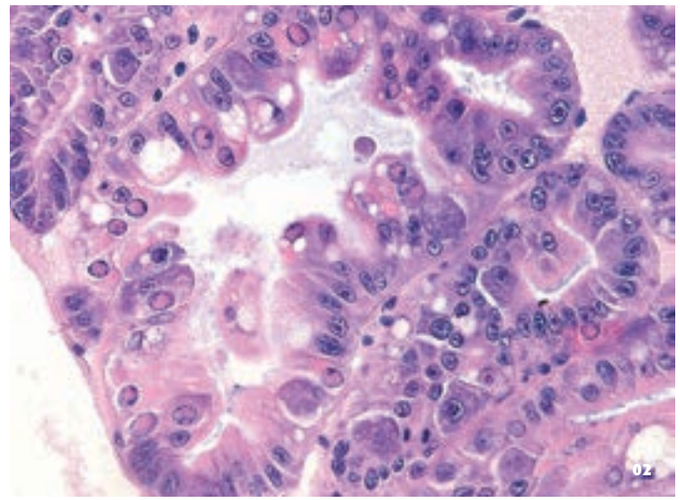
Spot disease

is a serious bacterial infection that can be fatal for dolphins. Infection can arise from coming into contact with infected fish or infected water. There is little known about the presence of these bacteria in dolphins. That is why an epidemiological study was carried out to look for antibodies in dolphins. Treatment of diseased animals can be achieved using antibiotics, although these are often administered too late because dolphins only portray symptoms when the disease is already far along. Hence, vaccinating dolphins in dolphinaria and zoos is recommended. This vaccine already exists for pigs, but not yet for dolphins. Research is still undertaken to determine how to make the vaccine effective for dolphins.

The 17-18 year old students of the children workshop led by Wina Bogaert - came to visit the veterinary medicine campus in Merelbeke. They were overwhelmed by the diverse marine research activities that take place there. Koen Chiers, Professor of veterinary pathology, provided explanation about the mysterious skin blotches that North Sea fish have recently been portraying. Inspired by the images of tissue sections that are used during microscopic analysis, the students got to work.

"I was immediately inspired by all the colours and structures of the tissue sections! Afterwards, I was even sent pictures of the sections, which we could further work with in the class." (Wina Bogaert, teacher children workshop)

"I learnt about a whole new world. The sessions were packed with interesting information. I was not able to let everything sink in because it was time for the exhibition. But I will definitely continue to work around this topic in the future!" (Wina Bogaert, teacher children workshop)



02

"It was an incredible collaboration and a nice opportunity to take our work out of the academy and present it to a larger audience. Exhibiting the works in a beautiful hall in the centre of town was a very gracious offer!" (Parcifal Neyt, teacher Drawing)

"We rarely get the opportunity to explain research to children. My youngest daughter is 12 years, so I can practise explaining to her, but seldomly do I need to explain the whole research. It was extremely rewarding to finally do so. All kids know about dolphins and what it is like to be vaccinated, these ideas can then be elaborated on." (Eric Cox, Professor Virology, parasitology and immunology)

03

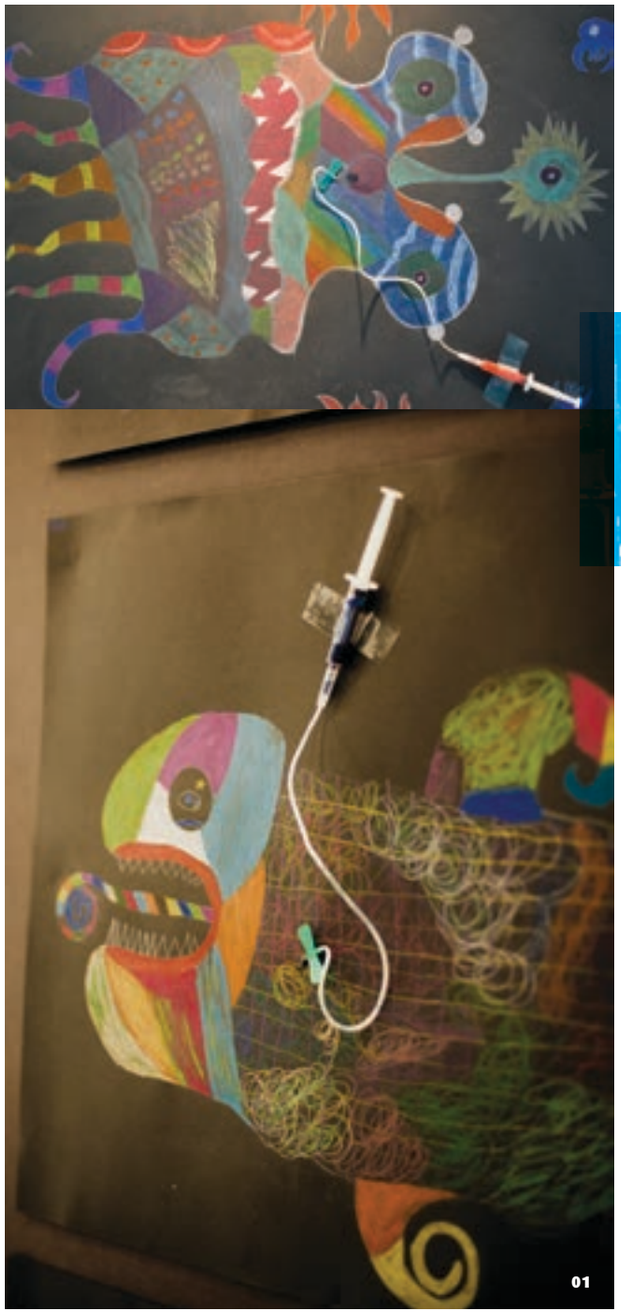
"I used my imagination to interpret the assignment. On the internet I searched for images of strange deep sea animals and gave my students the task to make up new sick deep sea animals, that urgently had to be vaccinated." (Parcifal Neyt, teacher Drawing)

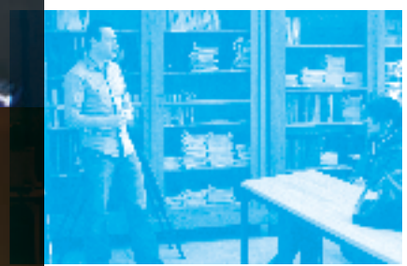
01

/Photo 01: A dab with different 'skin ulcerations. Different scales and skin have disappeared and chronic inflammation extends into the muscles. Often the cause is environmental pollution combined with a bacterial infection.

/Photo 02: To investigate the cause of death of sea organisms, autopsy is performed as well as an analysis of tissue using microscopic techniques.

/Photo 03: Dolphins with typical spots on the skin, occuring after infection with the spot disease. Research at Ugetn focuses on an effective vaccine.
© Michelle du Toit





/Artwork 01:
Unhealthy marine animals
Visual Arts, lower degree mentored by Parcifal Neyt
Coloured pencil on black paper, syringes and catheters

/Artwork 02:
Dead Fish
Sophie Cocheteux-Depraeter, Experimental Painting 2nd year mentored by Annick Mahieu
Oil paint, canvas
Size: H: 40cm, W: 40 cm

Participating scientists, art teachers, mentors and artists (adults)

David de Wolf
Kurt Defrancq
Adinda Baro
Agnes Vlaeyen
Ann Costenoble
Els De Carne
Geert Vergauwe
Goran Grahovac
Guy Timmerman
Ann De Winne
Ann Dupré
Ann Van den Berghe
Anne d' Heygere
Anne Van De Sype
Carine Buysse
Caroline Dobbelaere
Catharina Bossaert
Cathy Cortvriendt
Cecilia Jaime
Chris Decadt
Annelies Coene
Annemie Geldof
Axel Leijman
Barbara Steyaert
Bert Vandenberghe
Bram Peirs
Claudia De Angeli
Dammy Vermeersch
Danielle De Meulemeester
Danny Govaert
Edel Poeckens
Effie Coppieters
Peter De Pauw
Philippe Druez
Pia Cabuy
Raf Eeckhout
Riny Dees-Roose
Robbert Oosterhof
Eric Fauconnier
Eric Reynaerts
Eric Tollenaere
Fatima Chamhka
Filip Hamerlinck
Fleur Langerock
Francoise Herpol
Françoise Van Sande
Freddy Verslype
Frederik Allegaert
Gerda Wolff
Gregory Ball
Hilde De Bodt
Hilde Rosseau
Gudrun Blieck
Gudrun Blieck
Guido De Corte
Guy De Dapper
Hendrik Wauters
Henk De Fevere (HenKe)
Inge Casteleyn
Isa Dhondt
Isabelle Van Impe
Jan Smekens
Jens De Munck
Johan Paton
Jolanda Zanetti
Karla Persyn
Karlien De Temmerman
Kathleen Vercauteren
Katleen Holvoet
Eliane Brion
Els Lesage
Emilio Vitale
Katrien Heijse
Katrien Maertens
Kevin Van Wonterghem
Kirsten Verboven
Kristien Van Poucke
Kristof Rosseel
Laurent Camerman
Lina Ceulemans
Linda Van Mansart
Lu De Porre
Luc Everaert
Luc Rogiest
Lut Goessens
Lutgarde Goessens
Marc De Moor
Marcus Verbuyst
Marianne Geeroms
Marie-Alice Boshoff
Marie-Jeanne De Smet
Marie-Jeanne Dewettinck
Marijke Bral
Marinette Vandevyvere
Mathias Spriet
Michel Teerlinck
Micheline Beddeleem
Micheline Van den Broecke
Mieke Broeckaert
Miriam Ooms
Mirjam Grymonprez
Monique Caboor
Monique Jansen
Myriam Grymonprez
Nanda Raeman
Nele Van Canneyt
Nico Van Gaever
Nida Özer
Nora Lorre
Paul Laroy
Peter Baeke
Roos Verhavert
Ruben De Somer
Sanne Laebens
Serge Verwest
Sigrun Reichardt
Sofie De Pauw
Sofie Spruyt
Sofie Vansteenlande
Solveig De Clippel
Sophie Cocheteux-Depraeter
Sophie Martens
Tabitha Goh
Tom Wauters
Valérie Vanheule
Vicky Van Keer
Ward Delbeke
Wendy Van Driessche
Evy Copejans
Francesca Pasotti
Frank Devlieghere
Frédérique Steen
Wim Coppieters
Wim De Block
Wim De Niel
Yves Berteloot
Anton Retsin
Barbara De Geeter
Bob Van de Putte
Carl Van Isacker
Céline Butaye
Chris Vanbeveren
André Cattrijsse
Ann Vanreusel
Anne Willems
Annelies Goffin
Annemie Decostere
Arne Kinds
Joëlle Servais
Karen Van Gulik
Maen Florin
Marianne Stevens
Marieke De Munck
Hendrik Vermeulen
Ineke Marynissen
Inge Decuypere
Iza Cracco
Jacques 't Kindt
Marnix Everaert
Oona De Keyzer
Parcifal Neyt
Patrick Baele
Stijn Gisquiere
Veerle Van Nuffelen
Vigdis De Cauter
Vin Lenaerts
Viola Vandomme
Vladimir Ivaneanu
Wim Van Cauwenberge
Wina Bogaert
Marc Brackez
Teun De Dobbelaere
David Covent
Dennis Denys
Chantal Devos
Sara Everaert
Penny Provost
Willem Rasschaert
Ruth Viaene
Ana Trias Verbeeck
Katja Guilini
Koen Chiers
Koen Sabbe
Kristof Demeestere
Lander Blommaert
Leendert Vergeynst
Colin Janssen
David Van Rooij
Elien Dewitte
Eric Cox
Jan Mees
Jacques Van Bruaene
Geraldine Lacave
Helen Decleyre
Ines Tavernier
Jan Reubens
Jan Seys
Jelle Van Campenhout
Lynn Vanhaecke
Marieke Desender
Marjan Doom
Marc De Batist
Marleen De Troch
Nancy Fockedey
Nele De Meester
Nic Smol
Olivier De Clerck
Peter Troch
Stefanie Dekeyzer
Tim Deprez
Tina Mertens
Vera Van Lancker
Wilfrida Decraemer
Xander Van Doorslaer
Céline Van Rijckeghem
Ann Barbier
Annique Mahieu

... and all artists from the children and yought workshops!

Christel Degros
Danny De Vent
Elisabeth Makay

Participating research groups from Marine@UGent*

Faculty of Sciences, Department of Biology, Research Group Nematology
Prof. Wilfrida Decraemer, Dr. Nic Smol
www.nematology.UGent.be
18

Faculty of Sciences, Department of Biology, Research Group Marine Biology
Prof. Ann Vanreusel, Dr. Tim Deprez, Dr. Katja Guilini, Dr. Marleen De Troch, Nele De Meester, Jelle Van Campenhout, Jan Reubens, Francesca Pasotti, Arne Kinds
www.marinebiology.ugent.be
03 04 05 06 07 10 17

Faculty of Sciences, Department of Biology, Research Group Phycology
Prof. Olivier De Clerck, Frédérique Steen
www.phycology.ugent.be
16

Faculty of Sciences, Department of Biology, Research Group Protistology and Aquatic Ecology
Prof. Koen Sabbe, Lander Blommaert
www.pae.ugent.be
19

Faculty of Sciences, Department of Geology and Soil Science, Renard Centre of Marine Geology
Prof. David Van Rooij, Prof. Marc De Batist
www.rcmg.ugent.be
12

Faculty of Sciences, Department of Biochemistry and Microbiology, Laboratory of Microbiology
Prof. Anne Willems, Helen Decleyre
lmg.ugent.be
15

Faculty of Engineering and Architecture, Department of Civil Engineering, Research Group Coastal Engineering, Bridges and Roads
Prof. Peter Troch
www.ugent.be
02 09

Faculty of Bioscience Engineering, Department of Sustainable Organic Chemistry and Technology, Research Group Environmental Organic Chemistry and Technology
Prof. Kristof Demeestere, Prof. Jo Dewulf, Prof. Herman Van Langenhove, ir. Leendert Vergeynst, ir. Xander Van Doorslaer
www.ugent.be/bw/doct/en/research/envoc
08

Faculty of Bioscience Engineering, Department of Applied Ecology and Environmental Biology, Research Group Environmental Toxicology and Aquatic Ecology
Prof. Colin Janssen, Ines Tavernier
www.milieutox.ugent.be
13 14

Faculty of Bioscience Engineering, Department of Food Safety and Food Quality, Laboratory of Food Microbiology and Food Preservation
Prof. Frank Devlieghere, Prof. Mieke Uyttendaele
www.foodSciences.ugent.be/nl/LFMFP
11

Faculty of Veterinary Medicine, Department of Parasitology, Virology & Immunology, Laboratory of Immunology
Prof. Eric Cox, Dr. Geraldine Lacave
www.vetimmunology.ugent.be
20

Faculty Veterinary Medicine, Department of Morphology
Prof. Annemie Decostere, Marieke Desender, Marjan Doom
www.ugent.be/di/morfologie/nl
01

Faculty Veterinary Medicine, Department of Pathology, bacteriology and poultry diseases, Laboratory of Pathology of domestic pets
Prof. Koen Chiers
www.ugent.be/di/en/departments?ugentid=D105
20

Faculty Veterinary Medicine, Department of Veterinary Public Health and Food Safety, Laboratory of Chemical analysis
Prof. Lynn Vanhaecke
www.vvv.ugent.be
08

*The marine science center of excellence ***Marine@UGent*** from Ghent University is an interdisciplinary consortium which aims to promote and facilitate the collaboration between these research groups and with the Flanders Marine Institute (VLIZ). The cooperation between 30 research groups from 6 faculties (Bio-Engineering, Sciences, Engineering & Architecture, Law, Veterinary Medicine, and Medicine & Health Sciences) will result in innovative results and boost marine science and technological innovation in Belgium. More information on the research groups and the consortium:
www.marineatugent.be

Participating ateliers from the Academy for Visual Arts Ghent

Visual arts (general) – children
teachers: Patrick Baele, Els De Carne, Barbara De Geeter, Oona De Keyzer, Marieke De Munck, Marie-Ange Demuysere, Goran Grahovac, Vin Lenaerts, Annique Mahieu, Elisabeth Makay, Parcifal Neyt, Marianne Stevens, Wim Van Cauwenberge, Bob Van de Putte, Viola Van Domme and Veerle Van Nuffelen

Visual arts (general) – yought
teachers: Wina Bogaert, Céline Butaye, Oona De Keyzer, Marieke De Munck, Annique Mahieu, Anton Retsin, Karen Van Gulik

Visual arts (general) – adults
teachers: Céline Butaye, Inge Decuyper, Marie-Ange Demuysere and Guy Timmerman

Animation – children
teachers: Ann Barbier, Iza Cracco, Danny De Vent, Christel Degros

Animation – yought
teachers: Ann Barbier, Iza Cracco, Danny De Vent, Christel Degros

Animation – adults
mentored by: Ann Barbier, Iza Cracco, Carl Van Isacker and Geert Vergauwe

Sculpturing – adults
mentored by: Maen Florin, Goran Grahovac and Guy Timmerman

Painting – adults
mentored by: Inge Decuypere, Marie-Ange Demuysere, Annique Mahieu, Jacques 't Kindt, Chris Vanbeveren and Koen Vos

Drawing – adults
mentored by: John Gelaude, Mathus Michel, Parcifal Neyt and Joëlle Servais

Mixed Media – adults
mentored by: Hendrik Vermeulen

Illustration & Cartoon – adults
mentored by: Oona De Keyzer, Stijn Gisquière and Ineke Marynissen

Graphic art – adults
mentored by: Vigdis De Cauter, Marnix Everaert and Ivaneanu Vladimir

Photo art – adults
mentored by: Rudi Bogaerts, Reinhart De Grendel, Lieven Herreman, Lieven Neirinck, Virginie Schreyen, Marc Van Roy and Marieke Verfaillie

Ceramics – adults
mentored by: Evelien De Winter, Fiorella Stinders, Annouk Thys and An Van den Abbeele

Marine Art

Marine Art is a unique project in which the Flanders Marine Institute (VLIZ) brought art students and teachers from the Academy for Visual Arts of Ghent into contact with the marine researchers from Ghent University. By means of a presentation, a dialogue or a visit to the lab, the art students learned about the status of the ocean and about marine scientific work.

The aim was to enhance the art students' ocean knowledge and observation skills, to arouse curiosity about the seas and ocean, and to give inspiration to the creative process. The enthusiasm of 1,250 participants resulted in 65 workshops and more than 300 drawings, paintings, graphics, sculptures, mixed media works, illustrations, photographs and animated films. This report wants to document the process, the progress and the resulting artwork; complemented with quotes and pictures.

Marine Art to enhance Ocean Literacy

Ocean literacy is about understanding the ocean's influence on people and the influence of people on the ocean. It is also about assessing what the general public knows, wants to know and should know about the ocean. By redressing the lack of ocean-related content in science education standards and instructional materials in informal educational initiatives (aquaria, museums, media, etc.) it will lead to more public involvement and active participation. Ocean literacy is a prerequisite for Europe's quest for a more marine-oriented society and economy. It prepares an entire community for a closer relationship with the sea.